



September 2001

Volume 69 No 9

Amateur Radio

Three aspects
of amateur
radio



Ross Hull
Trophy

- A Morse Code ID for home station or repeater
- Hints and tips for using Surface Mount Technology (SMT)
- An antenna coupler for the FT-817



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Amateur Radio

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Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

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Advertising

Mrs June Fox,
Tel: (03) 9528 5982

Hams

"Hams" Newsletters Unlimited
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031
e-mail: newsletters@ozemail.com.au

Office

10/229 Balalaika Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191

Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@hotkey.net.au

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Our cover this month

Three aspects of Amateur Radio.

The individual in a Contest, Rob Ashlin VK3EK; the Club and its social, swap and community awareness activity, SARCFest August 2001; and the WICEN support of a community event Coopers Rally SA. July 2001

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Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

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Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at \$4.00 each (including postage within Australia) to members.

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Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.



Colwyn Low VK5UE

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10/229 Belgrave Road

Caulfield North Vic 3161

Tel: (03) 9525 5862 Fax: (03) 9525 8191

<http://www.wia.org.au>

All mail to
PO Box 2175 Caulfield Junction VIC 3181

Business hours: 8.30am-3pm weekdays

Federal Secretary

Peter Naish VK2BPN

Federal Office staff

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VK1RJ

Well the RD has come and gone...

I hope every one who took part had an enjoyable time and the contest was a suitable act of remembrance to those who died in WWI. I did get a few hours to participate on Saturday night most of it on VHF. We even have a comment on the 2001 RD in this issue. Please send in your log.

This month we bring you an article on Surface Mounted Technology. I hope it will remove a little of the trepidation some of you may have in crossing another frontier. As I told you some months ago I got thrown in at the deep end, to first modify a FM95 for 70cm and then to build an 1152MHz local oscillator and the transverter to get 10mW at 1296MHz. It all worked first time and was just about all SMT. I have now been given an amplifier circuit and a board to build it on and I could have 200mW !!!! With a multi element Yagi I should be able to work over 100km. Not much to those who use these frequencies but to one who started on 1.8MHz at 10watt it's a marvel. Well I'm now in my 60s and only learnt electronics through Amateur Radio so don't let age and lack of formal knowledge stop you experimenting.

Following from this I feel the debate on the effect on the Internet on Amateur Radio is too negative. Amateur Radio is all about communication using Radio Waves. Those who joined our ranks just to be able to talk to their mates now have to choose between Amateur Radio, the telephone and the Internet. That really means that we are back to the core of Amateur Radio, experimenting. The people who join our ranks from now on will be interested in the challenge of doing it yourself. Using a station they have put together themselves, part of it they may have built. The challenge is making a particular station setup work to the best efficiency. It is overcoming the problems of no visible

aerials, small blocks, no towers. It is making QRP stations to work the world. It is just contacts with people in other countries by chance and exchanging more than an RST report. It is looking at LF or UHF or SHF as a challenge to be met. It is the great satisfaction of saying I DID IT.

I put a picture of WICEN helping a local event on the cover. Now tell me does it tell the sightseer that this is Amateur radio in action. People recognise Amateur Radio before they recognise the meaning of WICEN so how about some advertising on the vehicles that tells people that this is Amateur Radio in action? In this case "I was gonna" but did not get there.

It is sad to note the passing of Capt Roger Alston on Friday 17th August. See Comment on 2001 RD.

Final notes.

1. Mike VK4DX tells me he has revamped his contest site www.vk4dx.net so if you're into contesting have a look.
2. I have had a few favourable comments on August AR cover. This is what can be done if we have a good photographer and a 10x8 print. So please remember I have to work with what I get sent, either intentionally or in the course of other information, to make the cover. Note 600dpi is the minimum resolution to get a cover that is presentable. If you have used film I would prefer a print to scan rather than a scanned copy.
3. Spring is here, JOTA is 20/21st October, the Spring-Summer VHF/UHF Field Days are coming. Thinking of holidays? Why not take the gear and work from a new location with portable gear? You might have to negotiate a deal with your partner. I would !

73 Colwyn



Ernest Hocking VK1LK

Amateur Radio in the eWorld

Since my last notes written for the August edition of AR I have been struck by the omnipresence of the Internet in just about everything that I seem to do these days. Putting aside the fact that I work in the field of IT, it does seem that wherever I turn I am faced with the "e" prefix. I am beginning to wonder just where amateur radio fits into this new eWorld that we live in. I now expect to be able to access a computer from just about everywhere. From this computer I now prepare all of my letters, perform research on a whole host of areas of interest, and even use it for the majority of my communications. Even when I don't have access to the computer I can still fall back to a range of facilities provided by the mobile phone company including simple messaging with SMS and even Internet access albeit at the time being for a small number of sites.

It does therefore seem to be that eRadio is here to stay in one form or another. What is it then that makes amateur radio unique and something more than simple telephone or Internet access. Where does consumer electronics in its various guises stop and amateur radio start? ...Is it the eSQL card? Is it IRLP? Or is it something similar such as shared transmitter and antenna sites available over the Internet to amateurs who can no longer operate from home?

This sort of issue has occupied me for some time over the last month namely connecting amateur radio to the Internet. This has had a national and an international theme. Locally I have been involved in efforts to clarify the position of how we should operate IRLP stations here in Australia. IRLP was originally developed in Canada where the rules of

the Canadian administration are very different from those that prevail here in Australia. Further afield, in conjunction with FTAC and the ACA liaison committee, I have been dealing with inquiries from the USA on the factors preventing adoption of WinLink here in Australia.

These discussion have raised two questions the answers to which that I believe we need to better understand:

1. To what extent do we need to achieve harmonisation between Australian and overseas administrations?
2. Where in Australia does the line that we can draw between consumer style communications and amateur radio lie?

I for one do not claim to understand the full range of amateur radio activities that today embrace the Internet. I do know that the relationship between

Where does consumer electronics in its various guises stop and amateur radio start? ...Is it the eSQL card? Is it IRLP? Or is it something similar such as shared transmitter and antenna sites available over the Internet to amateurs who can no longer operate from home?

amateur radio and the Internet represents a key aspect of the future of our hobby and I would be delighted to hear from anyone who has specific views on this issue.

On the recent news front I would suspect that most of you have by now learnt that the Department of Communications, Information Technology and the Arts (DCITA) have now released the final report on the RadioCommunications Review. This is an important document to all amateurs in that it addresses the ways in which the RadioCommunications Act might change in the future. The release of this paper by no means represents the end

of the process. I have already been made aware of the new public inquiry that has been launched by the Commonwealth Government that will be run by the Productivity Commission.

Obviously the WIA is keen to participate in this inquiry in order to ensure that the interests of amateurs are fully represented. Currently it is WIA policy to seek increased self-regulation wherever possible and this is the view that we will be describing to the Productivity Commission in any response. For more information you should visit the DCITA web page and the Productivity Commission at www.pc.gov.au/inquiry/radiocomms/index.html

In last months article I referred to the VK2 motion in respect of the introduction of a new foundation class licence. The motion proposed that the WIA investigate the feasibility of a license class aimed directly at attracting individuals to the hobby by means of a short introductory course over say a weekend. So far it appears that there is general agreement with this approach amongst the Divisions. It is just this sort of issue that we need to be prepared to comment on when it comes time to provide input to the Productivity Commission's inquiry.

Many of the letters that I have received have noted the benefits that arise to all of us through the WIA's web page. For this we have to thank Joe Burford for the time and effort that he puts into the management and maintenance of the site. Of late Joe has been investigating other services that can be hosted. Hopefully by the time you read this you will be able to visit the site to see some of the changes that Joe has made to improve the site and enhance the service that it provides to all amateurs. However please be patient - we are all volunteers and some of these things do take a while to set up.

Ernest Hocking

Email ernest.hocking@computer.org

Rewinding Power Transformers for 13.8V Power Supplies

Drew Diamond, VK3XU.

45 Gatters Rd.,

Wonga Park, 3115

Increasingly, radio equipment is designed to run from a nominal 12 or 13.8 Vdc supply, and may demand perhaps 10, 20 or more amps dc on transmit. Because many amateurs like to build (and save money), various journals have published plans for 240 Vac : 13.8 Vdc power supplies, and these have entered the mainstream of popular projects (Refs 1-7). We now have the choice of building a conventional (50 Hz-transformer type), or a switch-mode supply.

Switchers are rapidly replacing conventional supplies in new domestic and industrial applications, mainly because they are cheaper, more efficient, cooler, lighter and smaller than an equivalent 50 Hz-transformer device. However, if not properly designed, screened and filtered, switchers can also emit a lot more electrical noise. In amateur radio work, to have a 20 or 50 or 100 kHz, 500 W, square-wave power-oscillator running right there in the shack (or even in the same house) can have disastrous effects on weak-signal reception. So, in our case, it may be that a conventional power supply is more appropriate. Moreover, a conventional supply can generally be more easily built by the amateur using parts gathered from here and there.

Having chosen to make a conventional supply, the builder soon finds that a new power transformer is a very costly and/or hard-to-get item. Adequately power-

rated transformers may be rescued from defunct TV sets and other appliances. But their secondary winding voltages are nearly always unsatisfactory. Fortunately, in most instances, it is quite possible for a handy person to rewind a transformer secondary to requirements.

Transformer size, and hence power (VA) rating is dictated by the dc load. For example, a transceiver which requires a supply of 13.8 Vdc (14 V in round figures) at up to 10 A is a full load of 140 W. To regulate properly, the popular LM723/2N3055 pattern generally requires a full-load transformer secondary winding r.m.s. voltage of about 1.4 times the dc output voltage: $1.4 \times 14 = 19.6$ rounded to 20 Vac. In practice, due to the reservoir capacitor, about 10 % more alternating current than dc load current will flow from the secondary. Therefore, at maximum output current demand the secondary load is 20 (volts) X 11 (amps)

= 220 W (strictly VA). Power dissipated in the series pass transistor(s), diodes and other resistances being 220 - 140 = 80 W. So in this example we require a transformer rating of at least 220 W, and

preferably a bit more for safety margin (Refs 1 and 8).

VA power rating in W may be calculated $W = (5.58 \times A)$ squared, where A is the core cross-sectional area in square inches, or $W = (0.00865 \times A)$ squared where A is in square mm (see Fig. 1). In this example, the core is $1.94" \times 1.38" = 223$ W - probably just large enough for an 8 A power supply (Refs. 10, 11). If you have a choice of types, select one which has a bobbin/former with end cheeks (like Fig. 1), as these are generally much easier to work with. Those with a separate section ("double-bobbin") for primary and secondary are even better. Transformers which are covered with a thick layer of shellac or varnish, or have a 'C' type core are usually too difficult to take apart, and are not suited to amateur rework.

It would be prudent to check the serviceability of the transformer before any work is done on it. As a preliminary test, use your multimeter on ohms to measure the primary winding resistance - should read about 3 ohms for a 500 VA, to about 6 ohms for a 200 VA. Reverse the meter connections - observe a more sluggish needle deflection to settle at previous reading (due to the inductance of a good primary winding and residual magnetism in the core). On highest ohms range, test for open circuit between core and primary. Using a mains cord and plug, connect a 60 or 100 W 240 V lamp in series with the primary winding (Ref. 8). Tape over the connections to prevent accidental contact (and interpose a 1:1 mains isolation transformer if available). Ensure that no external shorts exist. Keep hands away from the set-up. Apply mains power. For a good transformer, the lamp should only glow dull red to



Photo 1. Extracting the first lamination

orange, indicating just a small 'magnetising' current (typically about 100 mA). If the lamp glows bright, there is probably some fault, perhaps a 'shorted turn', either in the primary or secondary. The core should only be slightly warm after some hours of operation.

Disconnect the lamp and power the primary direct from mains. If the primary has taps, (often 210, 220, 230, 240, 250 V), select the correct tap for your local supply voltage. Measure and record the secondary winding voltages - take great care, one winding may well be 100 V or more. Often, one of the windings will be low voltage, perhaps 6 V or so. Take particular note of this winding.

Remove the two or four retaining bolts and mounting hardware, noting the position of any fibre/plastic washers. Some transformers have a copper slug band fitted (to reduce flux leakage) - we won't need that - cut off with tin-snips. The core will be comprised of interleaved E and I shaped laminations. Now we come to the tricky part - getting that first lamination out of the core. Fix the core in your vice. Using a reasonably sharp knife, insert the blade (may need a tap with small hammer) under the first I lamination, which should snap away. Run the knife blade around under the E lamination and free it as much as possible. Now lever up the E where it enters the bobbin sufficient for a pair of vice-grip pliers to be applied. Using a small hammer, strike the pliers as depicted in Photo 1, and carefully drive out the lamination (which may be deformed beyond repair - never mind). Thereafter, it should be possible to remove the alternate E's and I's without damaging them.

With the core extracted from the bobbin, cut off the outer layer of insulation to expose the winding(s), then unwind each layer. When the known voltage winding (e.g. 6 V) is removed, carefully count and record the number of turns. A HT winding will take a bit of time to strip, and there may be a temptation to get stuck into it with a hacksaw. Don't do it, as there is the danger of going too far and cutting the primary. The primary is the winding closest to the core, so leave the insulating covering for that winding intact.

Most transformers of my experience have a volts/turn of between 0.3 and

0.5. The one in this example had 15 turns for the 6 V winding; $6 \text{ divided by } 15 = 0.4 \text{ volts/turn}$. Another way of expressing it is turns/volt, which in this instance is $15 \text{ divided by } 6 = 2.5 \text{ turns/volt}$. That is, for every 2.5 turns around the bobbin we get one volt. For a 20 V winding, I will therefore need to wind on $2.5 \times 20 = 50 \text{ turns}$.

Ordinary copper wire tables sometimes give current carrying capacity - but these are generally for 'open' applications. In a transformer, the wire is closely packed, and so the copper-loss heating effect is greatly increased. The generally accepted figure is between 1500 and 1800 A per sq. inch cross-section of copper (Refs. 8, 10), which results in the figures given in Table 1.

Current A	B & S	S.W.G.	mm	Inch
20	8	10	3.25	.128
15	10	12	2.64	.104
10	12	14	2.03	.080
5	14	16	1.63	.064
3	16	18	1.22	.048

Table 1

Select the appropriate wire gauge for your application. If in doubt, err on the larger size (but see next para.). Enamelled copper wire of the kind used in electric motors, alternators and so on is quite well-suited to transformer work. Some auto-electricians, armature/electric motor re-winders and transformer makers/repairers will sell wire of various gauges. In addition, Melbournians have O.H. O'Brien Pty Ltd (ph 039699 8122), who are magnet-wire wholesalers. Electronic World (ph 039723 3860) can also supply some popular sizes on request.

A 20 V winding can usually be fitted in the space vacated by the old winding(s). However, it is a good plan to check: insert an E lamination into the bobbin and measure the winding window available, then, knowing the wire gauge, work out

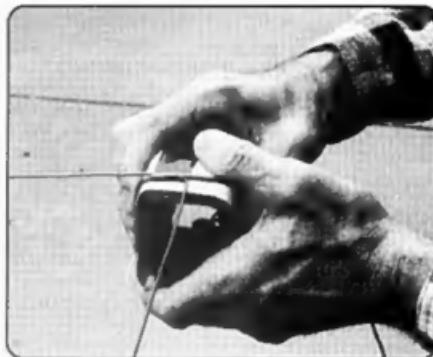


Photo 2. Winding the new secondary

the total cross-sectional area required by your winding. Remember that in practice it will always be a little larger, by perhaps 10 %, than the area calculated. Also, for a plain bobbin/former without cheeks, it is not possible to bring the winding right up to the former's edge without the wire slipping over the side.

Estimate the length of wire required (probably about 12 m for a 20 V), then un-spool that amount. Do not scratch or nick the enamel. Fix one end firmly (perhaps by clamping the spool in your vice), then grip the free end with bulldog pliers and give the wire just sufficient pull to straighten out any small wrinkles. To begin the winding, place a 90 degree bend in the wire, leaving sufficient for terminating. To keep the winding start in place (for a plain bobbin without cheeks), wrap a flag of insulating tape around the wire

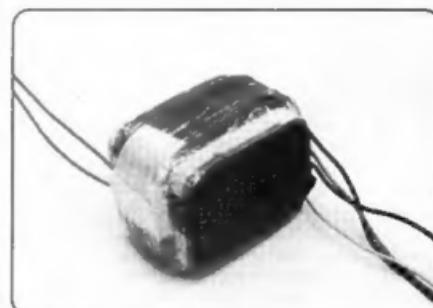


Photo 3. Winding complete

at the beginning of the first turn, then lay the flag upon the bobbin so that successive turns pass over the tape, as shown in Photo 2. Have tape and cutters in your pocket. Whilst maintaining tension on the wire, walk towards the spool, winding the turns on and counting as you go. With the winding done, perhaps a helper could hold the bobbin as the wire is cut (maintain that tension) leaving sufficient length for terminating, then put a bend in the wire similar to the start. Apply two or three layers of tape over the finished winding (Photo 3). Ordinary wide sticking tape (in my experience) stands up quite well in transformer work, although fibreglass tape is best if available.

Reassemble the core by interleaving the E's and I's. Take note of the colour of the laminations; some rely on an oxide layer for insulation (between laminations), and may be light on one side, darker on the other. They must therefore be replaced with same colour facing up each time. Fully lacquered laminations are not 'polarized'. When the core is nearly complete, it will be possible to knock the core into proper shape upon your bench-top. The last one or two laminations will probably need to be carefully tapped home. A squeeze in the vice sometimes helps in getting the stack to compress down sufficient to admit the last lamination. Don't worry about that mangled E.

Replace the external hardware and the two or four fixing bolts, being careful to refit any fibre/plastic washers correctly. Power-up the transformer with series lamp as described above, and check that the primary magnetising current is still a low value (dim red-orange glow). All being well, apply full mains voltage and carefully measure the secondary voltage, which should be pretty close to your calculated value. Should some

error occur - voltage a little low or high, it is possible to 'fudge' a bit by using (say) the 230 or 250 V primary tap if available. However, we should be very wary of using anything lower than the 230 V tap for a 240 V mains supply.

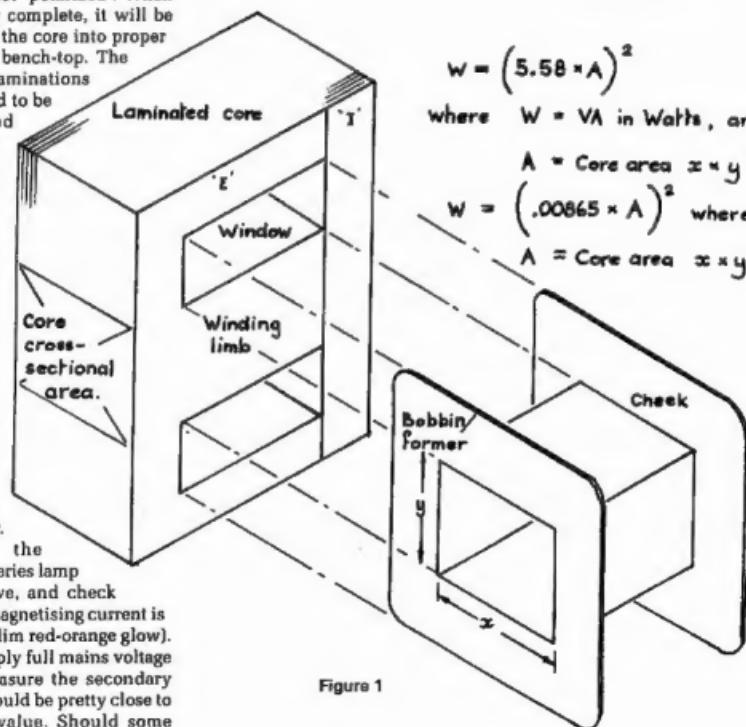
If some high-wattage wire-wound resistors, or a rheostat are available, apply a suitably rated dummy load to the secondary to test that the transformer will indeed deliver the power required. For example, a nominal 20 V, 8 A winding, when loaded with 2.5 ohms may (typically) fall from 20.5 V no-load to 19.5 V full-load.

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11. Coil Design and Construction Manual; Bernard Babini. Ch. 4- Babini Publishing.



$$W = (5.58 \times A)^2$$

where $W = VA$ in Watts, and

$$A = \text{Core area } \propto x \cdot y \text{ inches, or}$$

$$W = (.00865 \times A)^2 \text{ where}$$

$$A = \text{Core area } \propto x \cdot y \text{ mm.}$$

Figure 1

An Antenna Coupler for the FT-817

Peter Parker VK3YE

12/8 Walnut Street, Carnegie, Vic, 3163

E-mail: parkerp@alphalink.com.au

Today's miniature transceivers are making portable operation a breeze. With up to twelve bands in the one radio, the limits to station size and weight are increasingly being set by the battery and antenna system rather than the transceiver itself.

A recent example is the Yaesu FT-817. This compact all-mode rig provides QRP operation on all bands between 160 metres and 70 centimetres. It comes with whip antennas for the three higher bands, but leaves HF antennas to the ingenuity of the operator.

This article describes an antenna coupler designed to be used with the FT-817. The design criteria included 160 to 10 metre operation, compactness and ability to handle a wide range of antenna impedances. The unit described would work equally well with any other HF transceiver, provided care is taken to keep output power low or it is modified to handle higher power. The coupler can also be used as is by short-wave listeners wishing to obtain more efficient power transfer from wire antennas.

Description

The coupler uses a simple L-match circuit. It consists of a tapped inductance and a variable capacitor (Figure 1). The capacitor is switched to allow both low and high impedance antennas to be matched. With the values and antennas specified, the unit allows operation on

all amateur bands between 1.8 and 54 MHz.

To save space toroidal inductors were used. These are mounted on the rear of the rotary switch to minimise stray inductance. Two are required to provide sufficient inductance for 1.8 MHz. If 160 metres is not needed, the second toroid can be omitted.

Because the FT-817 has an inbuilt SWR indicator, no matching indicator was included. However, if one is desired, the simple resistive bridge as described in Reference 1 will prove suitable.

Components

The unit pictured uses a high-quality air-spaced variable capacitor and large rotary switch. These were salvaged items not available from usual parts suppliers. However, modern switches and plastic dielectric variable capacitors can be substituted at the risk of increased loss,

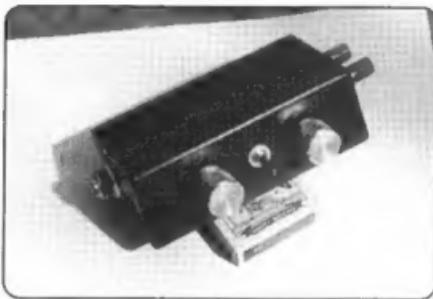


Photo 1 - The completed antenna coupler compared to a matchbox

a narrower impedance matching range and a loss of 50 MHz coverage. If using a plastic variable capacitor, use the 160 pF section and set the trimmers on the back of the capacitor to minimum capacitance (no overlap of the plates). The 100 pF maximum capacitance specified proved adequate in the prototype, but a value of 200 pF may be better if you intend to do a lot of work on 160 metres. To keep size small, such a unit was not used in the prototype.

The T50-2 and T50-6 toroids may also be hard to locate. Those used in the prototype came from Truscott's Electronic World in Croydon South (Melbourne). See the *Trade Handbooks* for names of other Amidon suppliers. If small size is not required, conventional air-wound coils could be used instead of the toroids specified.

The capacitor changeover switch (S1) can be a standard single pole double throw switch as stocked by the regular parts suppliers. If a double pole double throw switch is used, connect both sections in parallel to reduce contact resistance.

Enamelled copper wire should be used for the toroid windings. The gauge should be as thick as possible to reduce

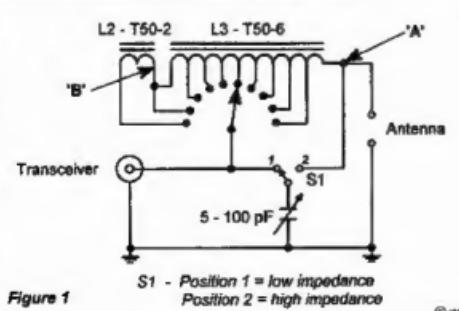


Fig 1 - Schematic diagram of antenna coupler

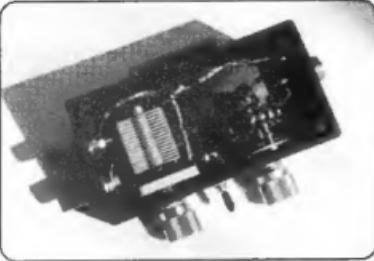


Photo 2 - Inside the antenna coupler

resistive losses but as thin as possible to accommodate all windings on the small toroids used. A gauge of approximately 0.3 mm was used in the prototype.

The antenna connectors are matters for personal taste. The unit pictured used an SO239 for the connection to the transceiver and binding posts for the antenna and earth connections. These accept either banana plugs or bare wire ends.

Construction

Choose a box large enough to fit the components but small enough to fit in your station's carry case. A 40 x 68 x 130 mm zippy box was used in the prototype (Photo 1).

Next start winding the two toroids. Both have the same number of turns but are wound on different cores and vary widely in the number of taps. L2, which allows operation on 160 metres, is easiest to wind and should be done first if you have little experience of winding toroids.

To wind L2, take approximately 1.5 metres of wire and loop through the red T50-2 toroid. After each turn pull the wire firmly so that the windings are reasonably tight. However, take care not to snap the wire. Count the number of turns as you go, noting that when winding toroids the turn count is the number of times the wire passes through the inside of the core. If necessary, space the windings so that wire covers about 90-95 percent of the toroid, but try to avoid overlapping loops. Trim excess wire so that there is only about 3 cm remaining on each side of the winding. When done, your toroid should look like L2 of Figure 2.

L1 is for use between 3.5 and 50 MHz and contains many taps. It is wound on the yellow T50-6 toroid to allow coverage of higher HF and lower VHF

frequencies. Winding is similar to L2, but you will need to make a tapping point every few turns. Figure 2 shows the cumulative number of windings from point 'A' at each tapping point. This means that, for example, once you have made a tap at turn 20, you need 15 more loops until the next tap at 35 turns.

Tapping points are made by making a hairpin loop in the toroid winding (approx 10 mm long) and twisting the loop. With a hobby knife scrape off the enamel insulation and tin the tap with solder. Recomence winding and making taps until point 'B' is reached.

The next step is to mount the toroids on the back of the rotary switch. This must be done with care, as it's extremely easy to get it wrong. At best, the unit will be inconvenient to use; at worst, it won't operate at all! The aim should be to have maximum inductance inline when the rotary switch is set anticlockwise (see Figure 1).

Point 'A' on L1 should go to the antenna socket via the rear of the toggle switch. Solder point 'B' of L1 and L2 to the switch contact one notch clockwise from the most anticlockwise setting. The free end of L2 is wired to the most anticlockwise contact. The other taps should be soldered to the remaining rotary switch contacts. Use short lengths of tinned copper wire (e.g. cut resistor ends) if L1's taps need to be extended. Keep leads short and trim any excess before soldering.

Mount the variable capacitor next. The rotor plates (shaft side) are earthed while

the stator plates connect to the common point of the toggle switch. Use pieces of tinned coaxial cable braid to form the earth strap linking the rotor to the transceiver and antenna connections.

The other connections between the variable capacitor, switches and panel sockets were all of enamelled copper wire approximately 1 mm diameter (not visible in photo). Use Figure 1 as a wiring guide. Be particularly careful not to omit the short links between the rotary switch and the toggle switch and point 'B' to the toggle switch.

Testing

Test for continuity between the transceiver and antenna connection (non-earthed side) with a multimeter. It should indicate approximately 0.4 ohms when both L1 and L2 are connected in circuit (switch anticlockwise) and fall to near 0 ohms when the switch is fully clockwise. At no setting of the switches should there be a connection across the two binding posts used for the antenna connection. If you fail to get these results, check your wiring against Figure 1 and correct the fault.

To test on air, connect a random wire (10 or 20 metres) and set the transceiver to a band such as 7 or 14 MHz. Attach a short counterpoise wire to the earth terminal on the coupler. Set the toggle switch to high impedance and the variable capacitor to about half mesh. Adjust the rotary switch for a peak in received noise. Then twiddle the variable capacitor for a further noise peak. Repeat the test on several bands and note the settings.

On a clear frequency transmit a short,

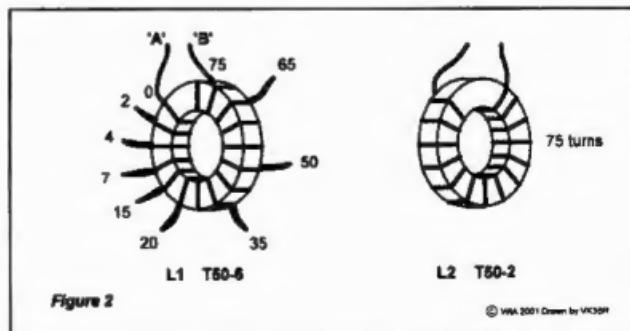


Figure 2

Fig 2 - Winding details for toroids

© VWA 2001 Drawn by VACSH

low power carrier. Adjust the antenna coupler for lowest SWR, starting from the settings previously noted. If a match is not possible, switch to the low impedance setting and experiment with L and C settings. Try different bands and different lengths of wire to see what can be matched where.

Antennas and Operation

Many factors influence antenna selection. These include distance and spread of desired contacts, bands required, antenna size and site factors (e.g. availability of trees, outlook over water and vehicular access). For the author, the need to be able to hand-carry the station to treeless locations requires the use of thin wire antennas supported by a lightweight telescoping mast.

The author finds 40 and 20 metres an excellent combination for portable QRP operation at the current sunspot phase. 40 metres provides good coverage between 0 and 3000 km, while 20 metres is better for distances over 1500 km. Longer distances are possible on 40 metres, but attention needs to be paid to the 'grey line', the antenna's angle of radiation and station location, for such contacts to occur. It was decided that any portable antenna system should be particularly efficient on these two bands while still allowing operation on all HF bands.

The main antenna used has been a 20 metre end-fed wire. This is normally used inverted-vee style, with a nine-metre telescoping squid pole as a centre

support. A few metres of wire serve as a counterpoise. This arrangement has provided excellent contacts on 40 metres (including New Zealand with five watts SSB and South Australia with 1.5 watts AM). Performance on 80 metres is fair, but improves dramatically when the counterpoise is extended to 20 metres. Good results were not expected on 160 metres; however, QRP contacts have been made to Newcastle and Mt Gambier with this antenna.

For DX operation on 20 metres a full wave delta loop is more effective than the end-fed wire described above. This can be formed from the squid pole and 20 metre wire described above, but with the free end of the wire connected to the antenna coupler's earth terminal and the counterpoise wire removed. Fence posts or similar provide the low supports required to open the loop out. QRP SSB and CW contacts into both Europe and USA have been made with the loop on 20 metres, with the best result achieved when a mobile station in Canada was worked. By adjusting the antenna coupler, the loop can be made to operate on bands apart from 14 MHz.

Apart from a few contacts on 18 and 21 MHz, use of this antenna on the higher frequency bands has been limited. However, local FM repeaters on six and ten metres have been accessed with the system described.



Photo 3 - The antenna coupler used with the Yaesu FT-817 QRP transceiver

Conclusion

The station pictured in Photo 3 has been used portable several times this year, including during the John Moyle Field Day. Good reports from local and DX stations have been received on bands between 160 and 10 metres. While the system described is a compromise on some frequencies, it meets a need for a compact antenna system that operates on all HF bands.

Reference

1 'Novice Notes' AR June 1998

Have you worked them?



Photos courtesy of Henryk Kotowsky SMØJHF

Two operators, D44CF and D44BS in the Cape Verde Islands off Africa



A Morse Code ID for Home Station or Repeater

Peter Cossins VK3BFG

Over recent years small microcontrollers have been introduced into the electronics market. These have their own instruction set which is often different to the industry standards of Motorola and Intel based units.

I have had a look at these over the last little while, but was not that keen to learn yet another set of instructions after mastering the Motorola 68XX series and having been forced into the Intel 8051 by virtue of my teaching program at a TAFE College.

In recent times, Atmel has introduced a series of small processors, all running the full Intel 8051 Instruction Set. The internal programmer's model is identical to the normal 8051 and it has an added bonus there is 4k of flash ROM available for user programs. The one off price is about \$8.00—\$10.00 and they are available in a 20 pin DIL package. The data sheet is available from the Atmel website at <http://www.atmel.com/> and it provides all the necessary information

about the Ports and how to program the flash ROM. This chip should be very successful as Technicians and Engineers already familiar with the 8051 will be up and running immediately. Features include an on-board comparator and a serial port.

With student projects in Microprocessor Applications utilising this chip, a programmer design has been made available to me based on downloaded software and hardware suggestions from the 'Atmel Users Group'. (If you are interested in rolling your own then just get on the Internet and all the info is there.)

All of this is background to a request from the Melbourne 'Peninsular Radio Club' for me to build them a Morse code

ID for their new repeater. The last time I built one of these was for VK3RTV about twenty odd years ago !! Having a look at the 3RTV circuit, it consisted of TTL logic and a 'program once only' small ROM. (Fusible Link) These ROMs are no longer available and the PCB would be too big to fit into a relatively modern Phillips Transceiver that was to be used for the purpose anyway. The programming of these ROMs was sudden death as well, no second goes if it didn't work.

I decided to use one of the Atmel 89C4051 microcontrollers for the task. This device could really completely control the repeater and provide a number of other bells and whistles as

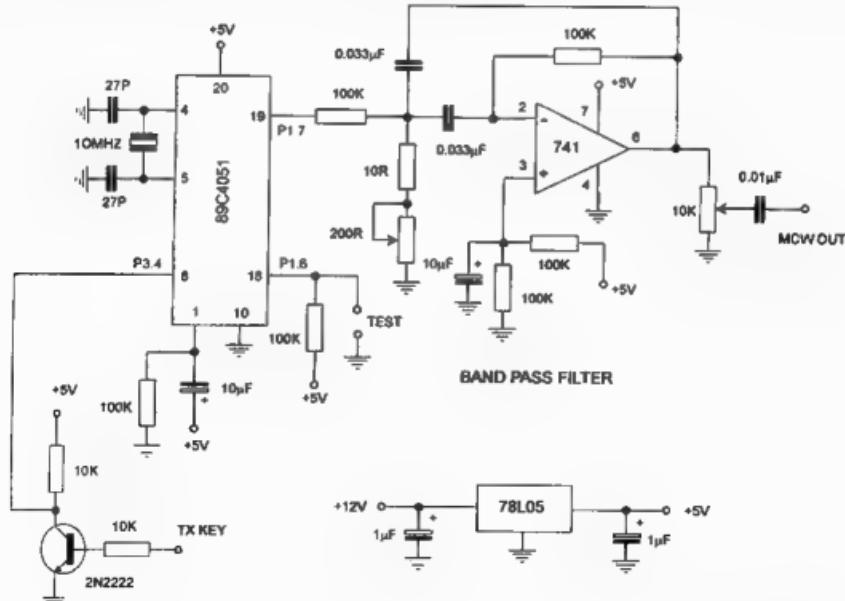


Figure 1. Circuit diagram

well. As my spare time is limited, I decided to just implement the request as is and if there was a subsequent request for other services in the future, those could be accommodated. The PCB layout provided is just for the morse code device, additional pinouts would be necessary if you are considering an expanded option.

As there is absolutely bags of program memory for the task, I did not write anything particularly smart, just kept to the KISS principle. The Morse Code comes out quite nicely if you use a 10 MHz crystal, although a crystal frequency a bit lower or a bit higher would still be OK. (I originally set up the design using a 11 MHz crystal.) The operation of the device is quite simple. If you wish to use it for local ID, shorting P1.6 (the Test Pin) to earth momentarily will result in an ID. Hold the pin to earth and the ID will repeat continually until the earth is removed.

In the repeater mode, the requirement from the Peninsular Radio Club was for an ID every five minutes. The program waits for five minutes and then looks at the status of P3.4. This Port monitors either the transmitter key line or the receiver mute line. (In the Phillips Transceiver, this is one and the same). If the Repeater is not transmitting, then the ID will be put on the back burner until the next activation of the system. With

a whisker more software, another port could be brought into play providing the customary repeater 'tail'. This would be an 'OR' function on the main TX key line or alternatively it could BE the TX key line. Currently, the TX key line (or RX mute line) is high for no signals. This will produce a logic low on P3.4 and the software is written accordingly. If you are familiar with 8051 Assembler and your system has a mute line low for no signals, the required change is in line 38 to JNB P3.4, TXON An additional transistor stage to invert the mute logic would also do the job with no software changes.

The microcontroller is a logic device and hence the output is bursts of square waves with a frequency of about 1 kHz. The 741 circuit is a simple bandpass filter which will produce a close to sinusoidal output for a pure tone. There is an on board 5V regulator and the supply needs to be more than say 9V DC. (12V is A OK)

Programming the Code

The assembly listing is provided for those who can program their own micros or you can just use the PCB layout or bandpass filter and develop a more elegant program or use another micro. The bandpass filter design dates back to my RTTY days but it works well. The PCB layout is not critical and you could

use a resist pen to make a homebrew board if photographic techniques are beyond your resources. A matrix board would be OK as well, just keep the crystal and the related caps close to the IC. The GOMORSE subroutine can be changed to suit any callsign by the substitution of the relevant dit and dah sequences. Note at the end of each character there is a character time delay. With 4k of ROM available you could make a fairly long message, although I think you would need to change the program to auto loading for this. For a six letter callsign, more sophisticated programming really was not necessary, particularly when VK is universal.

Programming Service

I am prepared to program the micros for anyone provided I am not out of pocket. The requirement would be to send me a package already self addressed and appropriately stamped, including the 89C4051, and the details of the required callsign or message.

I purchased a few samples of the 89C4051 from Semtronics in Melbourne, but I am sure they would be readily available at other similar outlets. Currently Jaycar and Dick Smith do not stock, but they may be forced to in the future as these micros are becoming very popular for obvious reasons.

Continued on page 19

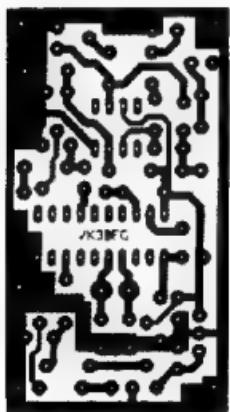


Figure 2a. Circuit board wiring

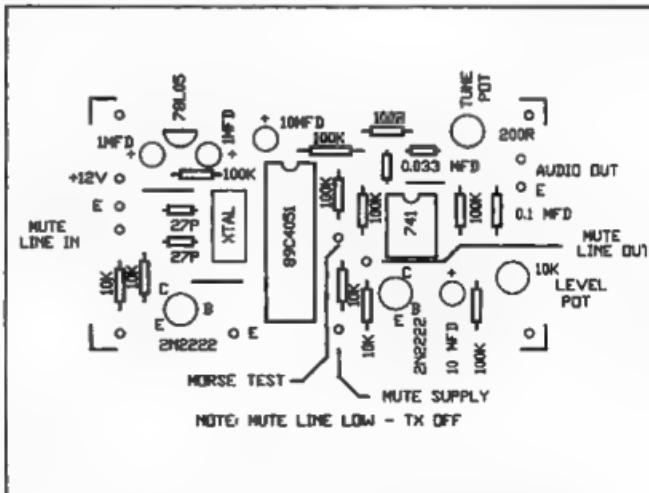


Figure 2b. Circuit board component positioning

Hints and Tips for using Surface Mount Technology (SMT)

Luke Enriquez VK3EM
PO Box 98, Kerrimuir, Vic. 3129.

A lot of people avoid dealing with surface mount technology (SMT) because of a lack of good information about it. While there are several good references for commercial assembly, very little is written about hand soldering and prototyping with SMT. This article has been written to introduce the amateur radio operator and experimenter to this interesting technology.

What is Surface Mount Technology? Put simply, it is a type of electronic component package. Most electronic components can be divided into two categories — through hole (TH) and surface mount (SM). Through-hole components have been used for many years and are designed to be loaded on one side of a printed circuit board (PCB) and soldered on the other. SM components are designed to be loaded and soldered on the same side of the PCB.

Why is SMT used in industry? SMT has several important benefits over through-hole technology. They are:

- Faster for automatic machines to place
- Have a smaller physical size for the same electrical function
- Less parasitic (unwanted) effects
- Cheaper in terms of raw material cost

Why should you care about Surface Mount Technology?

"Black Box Operators" aside, SMT is increasingly effecting people involved in the repair, modification or development of electronics. Through hole components are being replaced by their SMT equivalents at a rapid rate as manufacturers increase their investment in SMT production equipment to cash in on the benefits.

While there are exceptions, it is rare to see the use of leaded resistors, capacitors, transistors or integrated circuits in modern consumer electronics. Since the demand for these types of leaded parts is low and decreasing, their cost will rise over the next few years and sourcing them will

become difficult. Eventually, supplies will dry up and leaded components will join the domain of valves.

Those of you who doubt these warnings should spend some time and have a look at a modern mobile phone, computer motherboard or amateur radio. An alert observer will note that connectors and electrolytic capacitors are usually among the only leaded parts used. This is mainly because connectors often rely on their leads for mechanical strength and electrolytic capacitors have a shape that does not lend itself towards easy implementation as a surface mount device (SMD). Eventually the solutions to these problems will become cheaper and they too will disappear from electronic equipment in their leaded form.

SMT Myths

Many new facets of amateur radio and experimentation with electronics in general are hampered by the myths that surround them. Some of these myths are:

- SMT needs special and expensive equipment
- SMT components are hard to find
- SMT requires professional PCBs
- SMT requires special training and skills

To use SMT and not get too stressed about it does require the following:

- To have a steady hand
- To practice your technique
- To be invest in a good pair of tweezers
- To have reasonable eyesight or use magnification

Unfortunately, there is not much you

can do about the steadiness of your hand, but all the other obstacles can be easily overcome. The main emphasis of this article is to explain how you can work with SMT with the smallest possible investment of special equipment.

Common SMT Packages

There are three popular package styles used for most passive components. Their names refer to their size (in thousands of an inch or just thou). They are:

- 0603 (60 thou long, 30 thou wide)
- 0805 (80 thou long, 50 thou wide)
- 1206 (120 thou long, 60 thou wide)

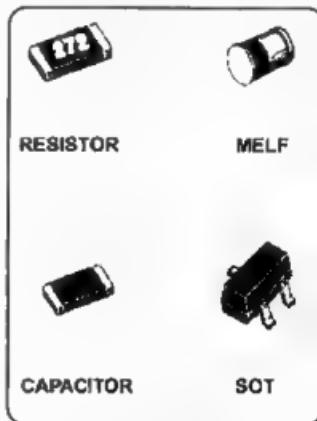


Fig 1 - Common discrete SMT components

Fig 1 details the common discrete SMT packages. Diodes, Transistors and IC's all use the SOT package and often measurement with a multi-meter and the

two or three character marking on the top of the package is the only way to guess what the component is. Some IC's use larger packages as shown in Fig 2. Several good web sites exist for determining SMT parts from their markings and these are detailed on the VK3EM website.



SOIC

Fig 2 - Common SOIC package

For the purposes of illustration, only a very small selection of SMT packages has been shown in this article. A more detailed listing including colour pictures can be found on the VK3EM website (See end of article). This may be useful for those who you who recycle parts from junk equipment that uses SMT.

How can SMT help you?

SMT has many benefits over leaded components. These are:

- Where component value tweaking (ie small changes) are needed. SMT capacitors and resistors are easy to parallel together, and quick to solder and de-solder. The chances of "lifting" circuit board tracks are reduced and so is the frustration of trying to work on both sides of a PCB at the same time.
- Where RF signals are being used Unwanted (ie parasitic) effects in SMT parts are smaller when compared to leaded parts, which results in better predictability of component characteristics. Leaded packages do not lend themselves to microwave use. However, there are exceptions.
- A significant number of modern components are only available in SMT form. If you want to play with them, then you have no choice but to use SMT!
- Where space is limited. This is dependent on the circuit type and

layout, but SMT parts like decoupling capacitors and pull up resistors can be used to reduce the space required on the PCB. SMT parts fit neatly across the gaps on VERO board and can be mixed with designs using leaded parts.

- Where drilling holes is a problem Anyone who has made a PCB understands the frustration of trying to work on two sides at once. SMT simplifies this because you load and solder all on the same side. Components can be used on both sides of the PCB without interference, or a solid ground plane can be used on one side with holes drilled only for ground connections.
- Where a pre existing circuit needs modification. Forgot to add that series capacitor, diode or resistor. Cut the track and insert a SMT. The solution is simple, small and tidy (no holes)!

Tips for soldering SMT Parts

Good soldering technique will come with practice, but these tips will guide you in the right direction. If you need to practice use SMT resistors, as they are not damaged easily.

- Keep the circuit board clean. Isopropanol or wood alcohol is suitable for removing light oils and grease. PCBs should always be washed under warm water, then oven dried at 60 degrees Celsius for 10 to 15 minutes. Handle the PCB by the edge only and avoid touching copper with your bare hands.
- Use the right soldering iron for the job. You don't need to purchase a temperature controlled iron, special SMT tip or SMT hot gas reflow station. These tools might be used in industry, but only to save time and increase reliability.

- All sorts of SMT soldering jobs can be done with the common Weller workstation. The important point is select the right tip (ie. have several tips on hand). As with any soldering job, the general idea is to have the joint up to temperature and soldered in a few seconds. Think about how much of a "heat sink" the joint will be and choose the tip based on that. Use of larger tips should be limited to areas of large solid copper plane (ie. ground plane). For all jobs, except very very small parts, I use the common Weller PT-8 7 tip as shown in Fig 3. With practice, you will learn what tip suits you best.
- Use L.M.P (Low Melting Point Solder) if you are experimenting. LMP solder is very similar to 60/40 solder, except that it contains 2% Silver. This Silver "loading" has two effects. It lowers the melting point (a few degrees) and it reduces the rate at which component metallisation leeches into the solder itself.

SMT resistors, capacitors, ferrite beads, etc. all make there electrical connections via metallised pads deposited on a substrate (Alumina, ceramic, ferrite, etc.). The metal used is often Nickel or a related alloy. One problem with soldering the same joint several times, is that each time the joint is heated, some of the Nickel leaves the component and joins the solder. This is called "leaching". Leaching is only a problem when the solder joint of a metallised component is heated several



Fig 3 - Soldering Iron and Tip suitable for SMT

times. Leaching occurs at a faster rate with standard 60/40 solder than what it does with LMP solder.

The downside of LMP solder is that it is about 3 times the price of 60/40 solder and harder to obtain, although sources of supply have been quoted at the back of this article.

If a kit was being built, where the component values are known, then 60/40 solder will be fine. If component changes are often and likely, then LMP would be more advantages for a long term reliable solder connection.

- Some people use "solder cream" sold by various shops. The advantage of solder cream is that it has more flux than regular solder. The solder cream is made up of very fine balls of solder mixed with a water based flux.

Unfortunately, solder cream was never intended to be used with a soldering iron. In fact, because the solder sits in a water based flux solution, the cream needs to be "dried" out (ie. the water has been driven off) before the solder can be melted. This can be done by moving the

iron tip close to the joint for a few seconds prior to moving onto the joint.

In experimentation quantities, solder cream is only available as 60/40 mix. In my opinion, the SMT experimenter would be better off to use LMP solder and extra flux (from a tube or a pen) rather than solder paste. It is a matter of personal preference. If you like using the paste, then go for it!

- Use solder flux where possible. One of the biggest problems with soldering SMT parts is that the amount of flux within the solder core is not sufficient for the joint. Professional SMT manufacturers use "solder cream" and controlled temperature ovens. However, soldering iron temperatures are far less controlled and often the flux has evaporated before the joint has solidified, leading to dry joint that is often dull in complexion.

Solder flux has other advantages. Because of its liquid nature, it increases the conduction of heat from the iron tip to the joint. It also increases the surface tension of the molten solder which helps to achieve a reliable joint and minimises the chance of bridging finely spaced pins.

Flux has the disadvantage that it is gener-

ally sticky, and can require special flux removers to remove. Soapy water and ultrasonic baths are one solution, but this requires a second wash in fresh water and a bake in the oven. Flux can also carry contaminants that may effect circuits operating in the microwave region or circuits with very high impedance's, especially in VCOs. Some fluxes contain lead-based chemicals, and it is wise to use gloves to avoid direct skin contact.

Flux is available from several hobby shops and other outlets in syringe (see Fig 4) and pen application form. In general, the use of extra flux makes SMT soldering much easier and increases solder joint reliability. However, you may not need it at all.

- Use a good magnifying lamp or other magnification source. SMT parts are very small. SMT solder joints are at least four times smaller again. Since it's the solder joint that should concern you most (especially if you want to build something reliable) it is useful to have a source of magnification. Some examples are shown in Fig 5
- Most people with reasonable eyesight should be able to solder without magnification and check the joint under magnification later. For those who have relatively poor eyesight (like myself), special "jeweller's eyes" that sit on the head can help. Good lighting is essential.
- Don't work in a cluttered space. Give yourself room to move around.



Fig 4 - Solder Flux is sold in syringes for easy application.



Fig 5 - Cheap and useful magnification sources



Fig 6 - Tweezers come in various shapes and sizes.

- and orientate the PCB so it's easy to reach the joint you're trying to solder.
- Buy a good pair of tweezers. You will be amazed how much easier SMT soldering becomes. In fact, out of all the equipment I have suggested, I feel this is the most important. Both soldering and de-soldering will involve your tweezers, so they are a worthwhile investment. If possible, get a quality set where the two ends meet together accurately. Examples in Fig 6.

Soldering small SMT Parts

The following technique should be used for soldering small SMT parts such as resistors, capacitors, inductors, transistors, etc, with a soldering iron.

- Add a small amount of flux to the area (if required) and add a small amount of solder to one pad.
- Pick up component in tweezers making sure component is horizontal. Alternatively, just move the component until it is close to the final position.
- While holding the component with your tweezers, melt the solder on the pad and move the component into position.
- Remove your iron but continue holding the component until the solder has solidified. Check to see that the component is sitting flat on the PCB. If not, re-melt solder while pushing gently on top of the component with tweezers.
- Solder the other side of the component.
- Re-melt the first solder joint and let solidify. This ensures both joints are stable during solidification.

- Check your work under magnification
- The joint should be shiny and concave. If you added too much solder, wick up with small solder wick and try again. See Fig 7 for joint quality.

Soldering Integrated Circuits

ICs require a similar but slightly different technique.

- Add flux to the pads where the IC is to be soldered.
- Add a small amount of solder to one of the corner pin pads.
- Line up the IC with the pads on the PCB. Double check the IC orientation.
- Melt the solder with your iron and move the IC into position with your tweezers. Let the solder solidify.
- Solder the diagonally opposite pin. Check under magnification that all pins line up with their respective pads.
- Solder the rest of the pins and check work under magnification.
- Special techniques may be needed for some packages (see below).

De-soldering Small SMT Components

- Add excess solder to one side of the component.
- While the side with excess solder remains molten, move your iron to the other joint and gently push the component off the pads.
- Clean up pads with solder wick.

Note: The trick here is make one side of the component a larger thermal mass and heat that side first. This may not work for all parts, especially those sitting on large ground planes.

De-Soldering Small Outline Integrated Circuits

This technique only works for SO-IC (50 thou spaced devices). Smaller devices may require hot air for removal.

- Apply flux to the IC pins
- Use solder wick to remove as much solder as possible from each pin.
- Thread fine enamelled wire under one row of pins.
- Secure one end of the wire on a nearby component (ie. Large Electrolytic).
- Starting at the loose end, heat each pin and pull wire simultaneously. Pull the wire as close to the PCB as practical. As the solder between the pin and pad melts, the wire will pop out and leave the pin standing free of the pad (and bent up slightly).
- Repeat steps 3 to 5 for the other side.

What parts can you recycle?

Some SMT parts can be quite expensive when purchased in small quantities. All sorts of SMT parts can be recovered from surplus and junk equipment (providing it uses SMT parts of course!). It will not only save you money, but also give you good practice at de-soldering. The VK3EM web site contains colour pictures of many SMT components so you can identify them.

If you use recycled components, perform an electrical check on them. Ceramic capacitors cause the most problems (they crack easily). Inductors, transistors and resistors can all be verified for correct operation. However, excessive heat may damage but not destroy the device.



1206 - Insufficient Solder



1206 - Adequate Solder



1206 Excessive Solder



SOT - Insufficient Solder



SOT - Adequate Solder



SOT Excessive Solder

Fig 7 - 1206 and SOT Solder Joints. Insufficient, Adequate and Excessive Joints.



Fig 8 - Hot air tip on a Pyropen

Special Techniques

While the purpose of this article is to detail the use of SMT with equipment most amateurs already have, there are a few exceptions. One of these is the use of hot air instead of a soldering iron. Hot air SMD rework stations are very expensive, but a much cheaper source of hot air is a Weller Pyropen with a hot air tip (Fig 8). Usually used for heat shrink, the hot air tip makes removing

SMT parts a breeze (albeit a very hot one!). Use of flux around the component to be removed will help the heat conduction into the part and the PCB.

One of the drawbacks with this technique is that surrounding components may also become molten and may

possibly be blown off their pads. This is more of a problem in high density PCBs with very small components when you're trying to remove a large component, such as an IC. This can be overcome by folding up a small piece of brass sheet to fit over the component in question. The brass provides a heat shield, and ensures surrounding components remain on their pads.

Surface Tension — Your best friend?

SMT is shrinking the size of component packaging at an alarming rate. How does one possibly avoid shorting pins with spacings like 0.3mm or even less? The answer is simple. You don't! What do I mean by this? With such small pin spacings, you would go crazy trying to solder each pin individually. With the aid of flux, you can increase the surface tension of solder to such a point that it is difficult to bridge the gap between pins and cause a short.

Several techniques exist, but an easy one is apply flux and make sure each pin is soldered without caring about shorts. Then, return to the pins with solder wick and soak up the excess solder. This will leave solder between the pin and the pad, but not between the pins.

Alternatively, you can simulate a wave soldering action by starting with a ball of molten solder and massaging it down

a row of pins. This is the method I use to solder 100 pin TQFP packages onto prototype boards. It helps to have the PCB a slight angle so that the molten solder ball does not need to work against gravity. You must use lots of flux to keep that surface tension up.

The ball of solder quite literally rolls along the fine pins, leaving a nicely formed joint between the PCB pad and the pin, but without shorts between pins. No air or special solder paste needed. I did tell you surface tension was your best friend!

Some soldering iron manufacturers now make special soldering iron tips that are hollow, specifically designed for use with this process. They are called wave tips. As always, a bit of practice helps. Find a dead mobile phone (full of very finely pitched SMT), and practice yourself.

Conclusion

This article has described some methods that may simplify the use of SMT for the amateur experimenter. It is by no means complete and further information can be obtained from the VK3EM web site <http://www.geocities.com/vk3em>.

Sources of Parts:

Quality Tweezers, Low Melting Point Solder and Flux can be purchased (small quantities) from:

Mextronics Co Pty Ltd
Factory B, 84 Industrial Drive
Braeside Vic 3195
Telephone: 03 9587 3888
Facsimile: 03 9587 3836

Acknowledgments

The author would like to thank Steve Merrifield VK3ESM and Bryan Ackerly VK3YNG for their help and advice in preparing this article. Some pictures for this article were extracted from the Tait T2000 Series II radio manual (with permission). Comments regarding this article or any questions may be sent to VK3EM@hotmail.com or see <http://www.geocities.com/vk3em>

Attention AR contributors! Don't forget...

when submitting electronic photographs,
they MUST be 300 d.p.i.

Please double check before sending. They may look fine on the screen, but in print the result will be disappointing

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JOTA

survival guide

Stephen Watson VK4SGW

National Co-ordinator JOTA/JOTI
Scouts Australia

Jamboree On The Air...

...is a World activity enabling Scouts to experience the International dimension and the bigger picture of Scouting while making friends and having new experiences. It can be a rewarding and fun time for the Amateur and is a chance to showcase our hobby to young people. All Sections of Scouts Australia can participate for all or part of the 48 hour period from 0001 Saturday 20th until 2359 Sunday 21st October 2001. All members of Guides Australia are very welcome to participate.

Calling Frequencies

JOTA contacts can be made on any band, with the calling frequencies acting simply as meeting places. Richard Middelkoop, World JOTA Organiser, was surprised to learn that we have our own calling frequencies in Australia, a situation that probably came about due to our separation in time and distance from Europe and the US, and the sheer level of JOTA activity in Australia. A DX station would have some difficulty breaking through the volume of local traffic.

The procedure for making contact with another station is to call 'CQ Jamboree' or 'CQ JOTA' on one of the calling frequencies. Having established communication, find a frequency that is not in use somewhere else on the band and move to it without delay. It's easy having made contact to forget to change frequency.

JOTA Calling Frequencies QSY after establishing communication

80 m	3.590 (CW)	3.590 (VK LSB)
40 m	7.030 (CW)	7.090 (DX LSB) 7.090 (VK LSB)
20 m	14.070 (CW)	14.290 (DX USB) 14.190 (VK USB)
17 m	18.080 (CW)	18.140 (DX USB)
15 m	21.140 (CW)	21.360 (DX USB) 21.190 (VK USB)
12 m	24.910 (CW)	24.960 (DX USB)
10 m	28.190 (CW)	28.390 (DX USB) 28.590 (VK USB)

National JOTA/JOTI Address

Many Countries invite their Head of State to take part in an opening broadcast for JOTA and Australia is no exception. An Address by the new Chief Scout (Governor General), the Patron of Guides Australia, and Chief Commissioners of Scouts Australia and Guides Australia will be broadcast on Amateur Radio and the Internet. It will be broadcast on Saturday 21st of October for approximately 10 minutes on the following times and frequencies:

Callsign	Broadcaster	Frequency
VK1BP	ACT Branch, Canberra	7.090, 14.290, 21.190
VK6SH	WA Scout HQ, Perth	14.190
VK6GGN	WA Guides, Perth	14.125
VK7SAA	TAS Scout HQ, Hobart	3.590

The time of the broadcast is 0300 UTC, which is 1300 hrs Australian Eastern Standard Time (adjust for state and daylight savings variations). Test transmissions will commence 10 minutes prior to the broadcast.

The National JOTA/JOTI Address can also be heard from various other broadcasters and repeaters throughout Australia who may commence

broadcasts at this or at a later time. You may be able to obtain details of local broadcasts through your amateur news broadcast.

The Address will be available in the week before JOTA in Real Audio at <http://www.wia.org.au/vk4>

Joining in

Contact the Group Leader of your local Scout Group and offer your services. There is no requirement for a JOTA station to register but Scout Groups can claim a free Scout callsign for you through their Branch (state) JOTA/JOTI

Co-ordinator All amateurs, regardless of call, may be issued a JOTA callsign to be used in accordance with the operator's

own restrictions.

Overs

Many Youth Members have never used a microphone before. It is usual, especially for the younger ones, for the PTT to be pressed and released with the speed of a mouse click accompanied by a faint 'yes' with very little, if anything actually transmitted. A great way to overcome this clumsiness is to do what we Amateurs do best-lots of talking.

Scouts should be delivered to you as a small group of about five or six. When

Continued on page 21

QSLs from the WIA QSL Collection Radio Museums

Ken Matchett VK3TL
Honorary Curator
4 Sunrise Hill Road
Montrose 3765

Even before World War Two, private firms, schools and private operators frequently were allocated call signs whose suffixes bore the initials of the operator or licensee. However, with few exceptions, it was only after the war that we saw the allocation of both call-sign prefixes and suffixes for special events, private operators and institutions.

The National Museum of History and Technology of the Smithsonian Institute in Washington, for example, has been issued with the call sign NN3SI. The Goddard Space Flight Centre has the call WS3SKY. London's Science Museum has the call GB2SA4. Edmonton Space and Science Centre, the call VE6SSC and the *Deutsches Rundfunk Museum* in Berlin, DKODR. Many have no special call sign but are well publicised on QSL cards such as VU2VM the Vismuseum in Bangalore, India and the State Museum of the History of Cosmonautics at Kaluga, Russia UK3XMC.

VK3AOM

In 1973 the call sign VK3AOM was granted to the amateur radio station situated in the Science Museum, Melbourne. Working in conjunction with the official WIA station, VK3BWI, weekly broadcasts were given on a whole range of HF and VHF frequencies until the closure of VK3AOM in the 1980s. On the front of the QSL is a photograph of a receiver from the Museum's collection that represents amateur technology of an earlier period.

GB2SM

This special issue call sign is one of the earliest of the CB prefixes and dates back to the early 1950s. Old timers will remember it as one of the forerunners of the pictorial QSLs that gained popularity after the war. The call sign is of the National Museum of Science and Industry, commonly known as the 'Science Museum', an institution that attracts approximately a quarter of a million visitors a year. Its origins lie in the scientific and educational collections of the South Kensington Museum that opened in 1857.

Telegraphy, telephony and the history of radio are extensively covered in the



GB2SM

Science Museum
London SW7 England



Communications Gallery. Adjacent to this gallery is the demonstration radio station GB2SM used to illustrate the practice of radio communication to students and other visitors

VE6SSC

This attractive multi-coloured QSL was sent from the Edmonton Space and Science Centre, Edmonton, Canada. The Centre opened on July 1, 1984, the large radio tower in the photograph being added in 1993-4. This tower was specially built for the volunteer-operated amateur radio station VE6SSC. The Centre boasts various attractions such as an IAM film centre, a multi-media planetarium and a public observatory. As well as flying a simulated space mission, visitors can drop in to the multi-mode, state-of-the-art, amateur radio station to try their hand at HF, VHF, UHF, satellite and packet. The QSL is sponsored by the Amateur Radio League of Alberta.

Thanks

The Federal WIA would like to thank the following for their QSL donations:



Bill VK2WS, Bill VK2XT, Geoff VK2OI, Lindsay VK5GZ, Mike VK6HD, Lionel VK6LA, Neil VK6NE, Jim VK9NS, Hans WIA L40370.

And the friends and relatives of the following SKs:

Ken Seddon VK3ACS

Malcolm Crew VK3BBU

Courtesy Dave Freeman VK3ZXU

Reg Ross VK3YD

Courtesy Mr John Park

Kevin Lawrie VK5AK

Courtesy Mrs M. Pierson

Staunton McNamara VK5ZH

Courtesy Christine VK5CTY

S.A. Emling A3DC

Courtesy Alan Doble VK3AMD

A Morse Code ID for Home Station or Repeater

Continued from page 11

Set up

If you have an oscilloscope and an audio signal generator available, insert the 741 and feed a 1 kHz signal into the filter without the micro in place. Apply power to the circuit and adjust the pot for a sinusoidal output. Switch off the power

and insert the 89C4051. Short the test pin to earth and apply power again. You should observe a continual stream of morse code ID's separated by a short time delay.

If you have no instruments then the

tune pot can be adjusted by listening to the TX on a receiver. This is a good idea to do anyway to ensure that the tone is as pure as possible.

Postscript

Well the inevitable happened, the Peninsular Radio Club contacted me and asked if I could add a courtesy beep from the Repeater when a station ceases transmission, and control for break-in and TX keyup.

I modified the PCB to include an output transistor driver with the option of an open collector output or for connection to a suitable powersupply line. This transistor driver is connected to P1.2 (Pin 14) of the micro. How this is configured will be dependent on what is required to drive

The software is still set up for a mute line that is low with signals present, however either software or hardware changes/additions can accommodate an opposite arrangement.

The principle of the control is that the line from the receiver to the transmitter key circuitry is broken and fed into and out of the micro.

Software modifications include use of one of the internal timers for the 5 minute event operating an internal interrupt and setting a flag. If the system

is quiet for more than 5 minutes, the ID will occur shortly after receiving a transmission.

The new PCB can be used for Morse ID or as a Repeater Controller, the only difference being one transistor and two resistors!

NOTE Space precludes printing of the programme listings, but a SAE will get you copies from the Editor. You can also get a copy by email request

Colwyn VK5UE

The path to winning

Cover Story



Jim Linton VK3PC

Rob VK3EK and Ross Hull Trophy.
The photographer
is Pauline Zahra

The pinnacle of a decade of personal achievements by Rob Ashlin VK3EK was winning the Ross Hull Contest, which has been running for 50 years. The win is also a credit to the spirit of knowledge and skill sharing among VHF/UHF/SHF experimenters.

Rob is naturally very proud at being the winner and readily acknowledges the support his fellow radio amateurs have played in him gaining top spot in this premier WIA contest. He said, "The feeling I have about my name on the trophy along with all the other winners of the past 50 years is very hard to explain. It's just great and I only hope we can keep it all going and keep experimenting along the way."

The VK3EK story began when Rob passed his Novice licence in 1990 with the callsign VK3VRA, followed by 10 months of study to upgrade under the expert guidance of Kevin McGrath VK3EQM. Like many of today's radio amateurs, he had no prior experience in electronics and used the Novice licence

as a stepping stone to the full qualification, and then seeking the best way to enjoy the hobby. By September 1991 the upgrade was achieved, and as Rob explains, he stopped, and thought "what is the next challenge?" That is where Roger Steedman VK3XRS, a very keen VHF and Microwave enthusiast entered his life.

Visiting the VK3XRS shack at Sarsfield in Gippsland early on a Sunday morning he listened to the Aircraft Enhancement Net on 144.200 and was immediately bitten by the bug. SSB contacts were being made over long distances. These included an over the mountains path to Canberra, 320 km away, and into Sydney around a distance of 500 to 600 km. Rob said, "I found this very exciting, having

previously believed such contacts had to be done on HF. This was something new, exciting, and very enticing." A string of questions fired at Roger VK3XRS by an enthusiastic Rob resulted in the formation of a relationship by the pair that is still going strong 10 years later.

In fact Rob's win in the Ross Hull Contest is in no short measure attributable to the guidance he has received from a multiple winner of that contest, Roger VK3XRS. Virtually everyone involved in weak signal working, and microwave communications generally shares their knowledge and encourage those interested in joining this aspect of the hobby, which is now going strongly. A skill to acquire for those on the higher bands is an understanding of propagation, which on

2 metres and above is almost exclusively tropospheric or reflective. It means knowing when there is likely to be a lift in signal due to enhanced propagation, and the path possibilities.

Rob VK3EK said, "I guess it's with this type of experimenting that back in 1922 our great pioneer, Ross Hull, at the age of 20, set the ground work for today's bunch of experimenters. It is important for us to look back and take note of how our early pioneers did things and we can learn from them and hopefully add to their experiments."

Propagation includes the use of amateur beacons, paging systems and television station carriers, and of course the tropospheric duct prediction tool, the Hepburn Index produced by Canadian, William Hepburn.

Rob VK3EK having been bitten by the bug of the higher frequencies, faced the reality that his home at WyYung just north of Bairnsdale, was in a low area and did not provide a good VHF take off. So it was necessary for him to go

portable on a "perfect" hilltop. For the WIA VHF Field Day Contest in January 1993, the journey was made with a van of gear and provisions to Mt Nowa, Grid Locator QF42.

Equipment for 6m, 2m, 70cm and 23cm resulted in a few contacts into Melbourne and also some local contacts. Also on the trip were a couple of mates, a Melbourne taxi driver and a sheet metal worker from Bairnsdale —neither interested in radio. The camping trip was most enjoyable, said Rob, but then he was surprised to find it achieved a win in the 24 hour section of the VHF Field Day.

It was back up the mountain next year to do it all again with a few minor adjustments. Under his original full-call VK3DEM, he won the 24 hours portable section in 1994, the 24 hours home section in 1995. Almost each year Rob has returned to Mt Nowa, trying out new frequencies with good results. In January 2002 the equipment supply list will hopefully include 6m, 2m, 70cm, 23cm, 13cm, 9cm, 6cm and 3cm.

In relation to distance records, on 16 January, 1997, contacts between VK3DEM and VK6KDC took out both the Victorian state record on 2m over 2862.2km, and the national 70cm record over the same distance. Voyaging to north-east Tasmania, VK3EK portable on 3 January, 2001 gained Tasmanian state records for 10GHz and 3.4GHz with a distance of 667km in contacts with VK5NC south of Mount Gambier.

The 1296MHz national mobile record was set at 565.5km on 17 February, 2001 between VK3EK mobile and Rex Moncur VK7MO, portable on Mt Wellington near Hobart.

At the other end of the spectrum, Bob VK3EK has been taking advantage of the winter months to chase DX on the HF bands and top up his quota for the DXCC.

He is a classic example of a person who has been able to achieve a great deal on the air, just by realising what is possible and deciding to go ahead and do it.

AF

JOTA. A survival guide *Continued from page 17*

they arrive try facing them while you are speaking into the microphone and start to speak to them as well as to the other station, for instance 'well, four Scouts have just come in, have a seat. I'm speaking to Matt who is a Scout at the Lower Scarcity Scout Group in Melbourne, and he's been telling me about what happened on their last camp'. (Continue on to introduce the Scouts that have just come in and develop a common interest). Keep charge of the microphone and only surrender it if a Scout shows a good aptitude with speaking on the radio and conducting a conversation. Otherwise hold the microphone in front of the Scout that is speaking and operate the PTT yourself.

Conversation

It can be frustrating when you have just finished an over of a couple of minutes describing things off the top of your head about what has been happening, the weather etc and a little voice answers 'Would you please repeat that, over'. Of course, it cannot be repeated and it is probably not a message where every word is vital and has to be copied down. Conversation and listening is very

difficult to develop especially with young children. Yes and no answers kill conversation. Once again it may be best to keep possession of the microphone, and with a Scout next to you, press the PTT and discuss the content of the last over, be it a question, item of information, or observation.

Supervision

You are not a Scout Leader and under no circumstances should you have to be responsible for a group of Scouts without an Adult Leader being present. The job of maintaining communication is big enough without having to worry about what the clown behind you is doing. If you find yourself left alone with Scouts jump up and down, yell and scream, and go QRT until you are either offered money or a Leader shows up to supervise them.

Before JOTA it is essential that you come to an arrangement with the Group Leader covering topics such as unloading your car, setting up, packing up equipment afterwards, security, refreshments, meals, and supervision of Scouts while on air. It is also important to mention that there may be times when you may not be able to get a workable

contact for a variety of reasons. Leaders put together a timetable for Scout activities and you should have input into this, with considerations about how much time each Scout will get on air and if this is sufficient, and the times of day and duration that you will be required

Thankyou

You might be shocked at the state of Scouts today, as I was when I showed up to sign on as a Leader. Gone are the sheath knives, the long hair, the initiations, the fights, and there are girls. The Scout today is much more mature, far better behaved and better presented than I was back in the 70's, thank heavens. But the poor old Leaders haven't had a payrise in 94 years!

JOTA could not happen without the fine support of amateurs over many years. To those involved this year, thank you very much in advance for your help, and to those that get the weekend off, thanks for your tolerance and the use of the third weekend in October each year.

JOTA/JOTI 2000 will be held on the 20th and 21st of October 2001. More information can be found under JOTA/JOTI in the International section at www.scouts.com.au

73, Stephen Watson VK4SGW

The Water Tower:

Home of the SA VHF Group and the Elizabeth Amateur Radio Club

Christine Taylor VK5CTY and Colwyn Low VK5SUE

Since 1981 the Elizabeth Amateur Radio Clubrooms have been in a water tower which was built during WW2 to serve the munitions works at Salisbury. It continued in service till the early 70's, for the WRE (Weapons Research Establishment) - now DSTO and the growing housing development at Elizabeth. It stands 145 feet high (44.2 metres) and the tank has a capacity of 250,000 gallons

Photos 1, 2 and 3 show the tower location and the view from the bottom. The tower is constructed from two concentric cylinders of diameters 4.5 and 12 metres. There are 5 levels plus the tank with approximately 6 metres (20ft) separation of the levels, each level has a usable area of approx 100 sq

metres. The useable space is the annulus between the cylinders. The concrete was mixed on site with two bagger mixers i.e. two bags of cement per mix. For the height of the tower the base excavation was surprisingly shallow, only 2.4 metres (8 feet) deep. The method of construction gives the tower its strength. 6 metres above the top (fifth) level is the actual floor of the water tank.

Access to the very top of the water tank, which is also annular, is via a central cylinder about 3ft across. There are vertical ladders between each floor and through the centre of the tank. To access the outside of the tank, which supports most of the aerials, there is a 25 foot ladder down to the bottom of the tank and another 25 foot one to reach the outside rim. There is ONE steep steel ladder between each level of the outer cylinder. Photo 4. You use the top edge of the tank to move around the perimeter!!

Access to the centre space is only available at the ground and fifth level floor. Anything to be taken up to the top is carried into the bottom space and lifted by pulley 100 feet to a trap door in centre of the top floor. From there it is carried on the shoulder or by another pulley system up through the three foot diameter tube to the very top. It is then lowered 25 feet, carried to the outer edge and lifted to the top or the rim and maybe higher if it is to be on top of a mast. Nothing is easy in the water tower!

The construction does not provide the



Photo 2 Some of the Aerials

most conveniently shaped meeting rooms. However the tower has all the facilities needed for the SA VHF Group/Elizabeth Amateur Radio Club and has been used almost every week since the club tenanted the tower. The ground level has comfortable chairs for informal meetings and it houses the kitchen and the VK5LZ station. Commercial equipment for TV relays for the ABC and SBS is on this floor with the antennae mounted round the rim of the tank. Mobile phone companies also use the tower for cell hubs.

The library is on the second level, including the VK5 Division library that was at the Burley Griffin Building. This



Photo 3 Looking up



Photo 1 The approach

means that all the radio books and magazines that have been gathered over the years by the VK5 Division have not been lost along with the headquarters. There is space on this level for lectures and a workshop and it has become the home for the VK5WI Sunday broadcasts. Photo 5. The second level is currently being refurbished and the third and fourth levels are empty, though the fourth level does get used for ATV links, particularly during JOTA.

The fifth level (100 feet up) has all the hardware for the VK5RLZ repeaters, beacons, ATV repeater and the VK5RLZ packet station and an enormous duct filled with cables that feed the phone company antennas. Photo 6, 7 and 8

The Elizabeth Club has had many clever people among its membership who have built and maintained repeaters on 2 metres and 70cm for phone, ATV, and packet. At the time of writing there are 22 antennas at the top of the tower and five or six at the lower levels where they protrude from the windows. An added bonus of the shape of the tower and its reinforced concrete is that most of the interference between aerials is avoided or overcome by moving to another spot around the circumference.

The first aerial was put in place almost as soon as the EARC was given a home in the tower and by the end of that year (1981) there were 15 in place. Throughout the occupancy of the tower although most of the aerials have been for VHF/UHF or SHF there have been a number of HF serials including a full sized, rotatable, 13-30 metre log periodic. Currently there are 5 HF antennas and plans are in place for another rotatable HF beam. However, as experience has shown, a beam will probably only last 3 or 4 years at that height, it is a debatable point whether it is worth the effort.

The height of the tower means that all the aerials are subject to a fair amount of wind damage so the repair and replacement rate has been constant at five or six a year throughout the tenure of the tower. The aerials have a marvellous coverage area either from the 100 foot takeoff or from the top of the 145 foot tower (which with a mast can be as high as 180 feet for even greater the coverage). Photo 9

There are some weight restrictions to what can be housed



Photo 5 VK5WI Station with VK5A M.

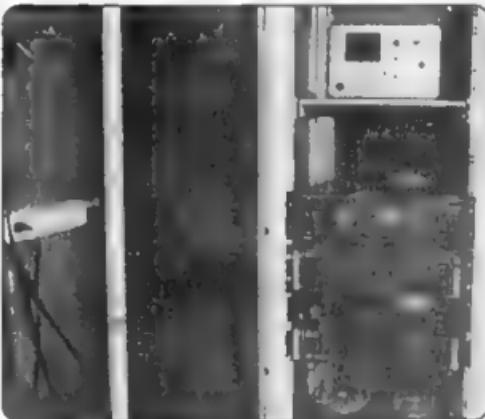


Photo 6 Equipment on Level 5



Photo 4 Top of one of the access ladders.

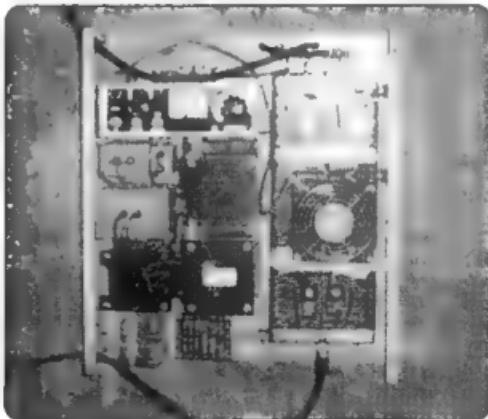


Photo 7 Equipment on Level 5

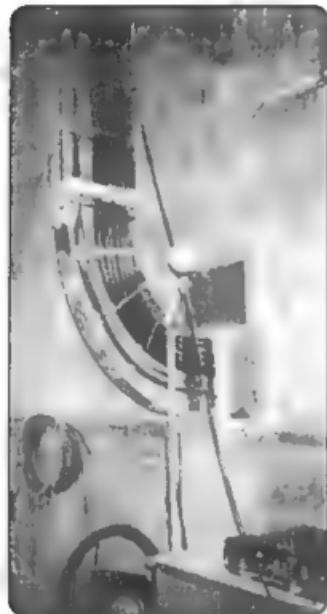


Photo 8 TV Company feeders

on each floor. After all the "floors" were really only designed to keep the inner and outer wall apart! There is both 12 volt and 240 lighting on all the floors and the entire building is covered by a security system that sends its alarm message out on the VK5RLZ repeater - IN CW!

When the custodianship of the water tower passed to the Elizabeth (now Playford) City Council it was on the

undertaking that the Elizabeth Amateur Radio Club remain the tenant and have prime tenancy rights as long as they remain a functioning club. This is a great incentive to continue operations. I cannot think of a better one. Long may they continue to send out their many signals.

Photographs from VK5CTY and VK5UE

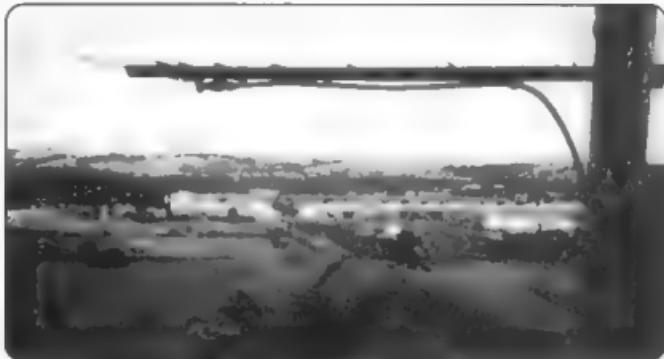
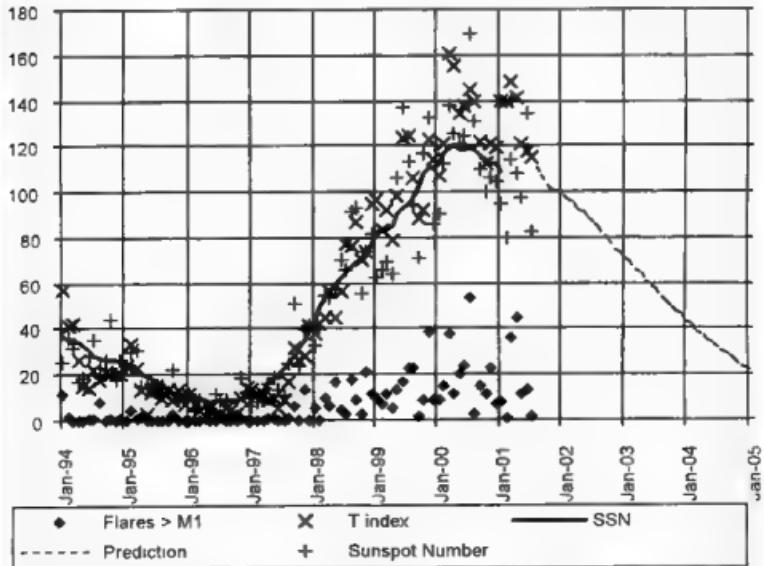


Photo 9 View from the top.

Sunspot numbers

Monthly average count Ju1 2001 82.8

Smoothed Sunspot Number Jan 2001 108.8



Data provided by the Ionospheric Prediction Service

Bill Rice: Honorary Member WIA

Stalwart inducted as Honorary WIA Life Member

The WIA Federal Council has honoured Bill Rice VK3ABP with a much deserved WIA Life Membership in recognition of his three decades of continuous service.

He joins a small number who have provided meritorious service to WIA Federal, and under a long established tradition receives Life Membership, with the WIA Federal body paying the annual membership subscription of their home WIA Division.

On receiving news of the honour, a quietly spoken Bill was most humble, and typical of this gentleman provided a succinct, honest heart-felt response, "The possibilities that I could achieve such an award was something that had never occurred to me." He had earlier been genuinely surprised on learning initially that he was to be considered for WIA Life Membership.

While serving the WIA continuously in various roles since being invited to become AR magazine's Technical Editor in 1972, it is clear that the motivation driving Bill VK3ABP has been personal enjoyment, a sense of sharing, learning, contributing, and the making of many good friendships along the way. Those friendships include members and former members of the WIA Publications Committee, on which he remains an active member.

When asked to identify a highlight of the past 30 years, Bill replied, "The celebrations of the Institute's 75th anniversary in 1985." He recalled it was a memorable occasion that included a formal dinner in Melbourne attended by the Federal Minister for Communications and dignitaries from IARU radio societies, WIA officials and ordinary members. It is hoped we can have a joint celebration in the year 2010, that of the WIA's centenary, and Bill's 83rd birthday.

Asking about his most known personal achievement, that of being the longest serving Editor of the WIA journal, Amateur Radio magazine, Bill recalls he was driven to reach that milestone. "The achievement of the 15 years became a motivation when I realised it was not that far off," said Bill, who eclipsed the term record held by Tom Hogan VK3HX (SK).

Being Editor of any publication you learn that is it not possible to please everyone, all of the time. Bill was coupled with a few "conflicts" while Editor, but at the end of the day his personal qualities saw him overcome them.

While most readers of AR magazine will be aware of Bill through him being its Editor, his full contribution to the WIA is much broader and somewhat lesser known. He joined the WIA in 1945. In 1972 he was appointed Technical Editor of AR magazine, and remained in that position until 1984, when he became Editor. Concurrently he was also Chairman of the WIA VHF Advisory Committee, and held this appointment until the Federal Technical Advisory Committee (FTAC) was established in 1981, and he became its Chairman.

One of his tasks during this time was in 1974, when he jointly with the then Federal President, Peter Wolfenden VK3KAU, presented the WIA's technical submission to the Independent Inquiry on FM Broadcasting. Then FTAC in 1981 under Bill's Chairmanship made the WIA's submission to the Broadcasting Tribunal Inquiry on cable and subscription TV. There were issues or



potential threats to the Amateur Service that the WIA addressed at the time.

Nomination initiated by WIA members

In late April this year at the WIA Federal Convention Bill VK3ABP received the Ron Higginbotham Award for service to Amateur Radio magazine—an annual award decided by the WIA Publications Committee.

At the WIA Victoria AGM meeting three weeks after the Federal Convention the issue of a Life Membership for him was raised from the floor. This resulted in six members speaking spontaneously in support, and the meeting recommending the WIA Victoria Council take steps to progress the matter with the WIA Federal Body.

The WIA Victoria Council then further considered the matter, and the recommendations of the members at the AGM were endorsed, with a postal motion issued a few weeks later to all WIA Federal Councillors for a vote. A majority of the WIA Federal Council voted in support of the motion. Probably due to the fact that Life Membership for service to WIA Federal is indeed a rare thing-making the honour even more prestigious, that not all WIA Divisions readily understood what has been a long traditional practice.

Jim Linton VK3PC, is a former News Editor of AR magazine, had been a Guest Editor for a period, and is an occasional contributor

Stealth Antenna Tuning

A device to allow an antenna tuner to be adjusted without placing a signal on air was described in Rad Com April 2001 by Kelvin Barnsdale ZL3KB. This was not the April article as this was elsewhere in the issue. The device was a noise bridge which allows the tuner to be adjusted using a noise source and the receiver. This avoids having to place a signal on air. Very useful if you need to adjust the tuner in order to work some choice DX. Kelvin ZL3KB had previously described a noise bridge in Break In September 1998.

The noise bridge is a transformer bridge which uses a small balun transformer as two arms of the bridge circuit. The other arms are a 50 ohm resistor and the antenna tuner load to be matched. The tuner is adjusted for minimum noise from the bridge circuit in the station receiver. At this point the load presented by the antenna tuner antenna combination is close to 50 ohms or a 1:1 VSWR. This is all done with just a small noise signal from the noise bridge. To aid in identifying the noise

bridge noise and help in achieving a null and hence a match the noise bridge noise is modulated. You can pick the modulated noise from the noise bridge source from the noise coming from the antenna.

The circuit of the noise bridge is given in Fig 1. The noise source is a reverse biased transistor junction, TR3, and the noise is modulated by an audio square wave generated by a multivibrator formed by TR1 and TR2. Transistors TR4, TR5, and TR6 amplify the noise signal which drives the bridge. The balun transformer appears to have an unused winding but this actually helps in balancing the bridge by balancing the capacitances in the bridge transformer. Transistors TR1, TR2, and TR3 are type BC337 but any similar audio type transistor could be used. Transistors TR4, TR5, and TR6 are type PH2369 or 2N222A but any high speed switching transistor having good gain at VHF could be used.

Transformer T1 is the heart of the bridge and is wound on an Amidon

Ferrite toroid type FT50-61. The winding is with four 180mm long strands of 0.3 mm enamelled copper wire which have been twisted together so as to have about 40 rotations over this length. The winding consists of 10 turns through the centre hole of the toroid. The turns should be spread evenly around the toroid with the start close to the finish. The dots on the windings in Fig 1 are all either starts or finishes of the winding. Don't mix them up. Resistors R12 and R13 form the 50 ohm bridge load and are relatively critical. They should be non inductive types such as carbon film and the lead lengths should be very short. All the other resistors are fairly non critical and are normal 0.25 W types. The capacitors are all 10 nF ceramic types.

A noise bridge PCB is available from Branch 05 Projects Group PO Box 1733 Christchurch New Zealand. Email kb.ew@xtra.co.nz. Should be fairly easy to get the parts and a PCB may help with construction.

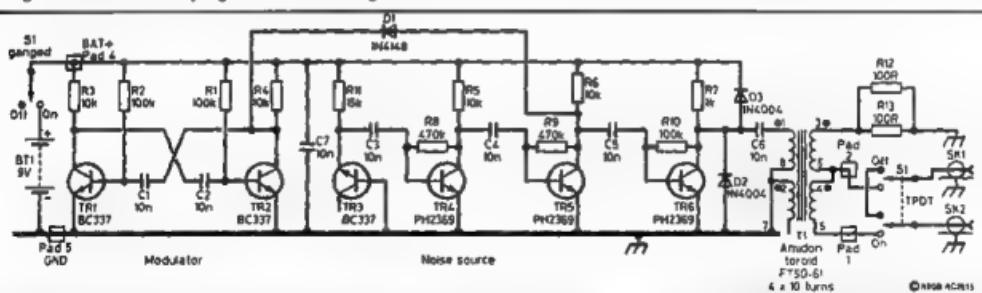


Fig 1. Silent Tuning Stealth Noise Bridge.

SWR Bridge Sensor Correction

In July AR Technical Abstracts an SWR bridge sensor was published which had been used as part of a Power and VSWR Meter by Kees Heuvelman PA0CJH published in Electron March 2001. Unfortunately the reference to the source of the original design thus component

was missed. This occurred due to the difficulty of dealing with a magazine written in a language other than English.

The original design was due to John Grebenkemper KI6WX and the original publication was in QST Jan 1987 and The ARRL Handbook CD Version 2 and

other ARRL publications My apologies to John KI6WX, Kees PA0CJH and the ARRL for missing this point. Hopefully this will set the record straight.

Thanks to Bill Beyer VK3BHW for pointing the error out

Assembly Using Tubing Cutters

In the Hints And Kinks column of May 2001 QST of Bob Schetgen KU7G a method of fitting a PL259 was described by Kevin Dean VE7CFS. The method is similar to methods described at various times but it offers a neat solution to a common problem. The process is shown in Fig 3.

A small tubing cutter is used first to cut the jacket and later to cut the tinned braid. The tubing cutter is a clamp type device which can be found in lumber suppliers. Plumbers use them to cut tubing leaving a square cut end. The jacket is first cut and removed. The braid is then tinned to make it smooth and solid. You will need a soldering iron with plenty of heat reservoir capacity such as a fairly solid bit. Then cut through the tinned braid with the tubing cutter. The tinned braid to be removed should then be cut at an angle with a hacksaw blade to facilitate the removal of the waste area of tinned braid. Remove the dielectric and prepare the centre lead. Fit the cable to the connector and solder the connector body to the tinned braid.

Finally solder the inner conductor to the centrepin. Preparation of all the surfaces to be soldered will help make the procedure go smoothly. A soldering

iron with sufficient heat reservoir capacity in its bit is desirable so as to minimise the time spent soldering.

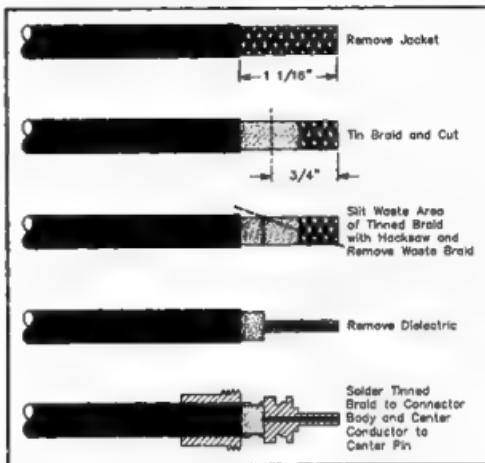


Fig 3. VE7CFS's PL259 Installation Technique.

CORRECTION

Unfortunately in the article on **Noise Blanking for the High Q LF Loop Antenna** several errors or omissions have crept in due to the redrawing process.

Figure 1. Auxiliary Antenna Interface & Phasing Unit (AR December 2001) Year should read 2000 not 2001.

Blanking Detector & Phasing Unit The "Noise Blank" and "Noise Cancel" labels were meant to refer to the two positions of the switch. As drawn it is not all that clear. The UP position is "Noise Blank" and the DOWN position is "Noise Cancel".

Figure 2. In the original, the Y axis was marked m.Secs meaning milliseconds. It has been wrongly marked as Microseconds.

Figure 3. Multivibrator N3 The Q and Q bar outputs on the original drawing have been omitted. Q is pin 6 and Qbar is pin 7.

Our apologies Lloyd

Colwyn, Editor

New WIA members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of JULY 2001

L21172	MR P A LEVARRE-WATERS
L21188	MR S KRAHE
L60417	MR D WHENT
L70156	MR M EMERY
VK2AND	MR B H ANDERSON
VK2ARF	MR R FENTON
VK2ATM	MR A T MONCK
VK2BOD	MR M CARDOSO
VK2DCJ	MR O ROBERTS
VK2FSH	MR C EDMONSON
VK2HBM	MR C MARTIN
VK2JBF	MR T J STAFFORD
VK2TPH	MR P M HOWCHIN
VK2ZS	MR C J HODGE MAN
VK6JJJ	MR C HAYHOW
VK6JRC	MR R SEAMAN
VK7JUF	MR M RICHARDSON

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operation, selectable channelised steps for FM operation, FM narrowwide modes for 29MHz use, and a large LCD screen with adjustable backlighting.

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D 3665

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FOR 2001



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Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory, GPO Box 600, Canberra ACT 2601

President Gilbert Hughes VK1GH
Secretary Peter Kloppenburg VK1CPK
Treasurer Ernest Hosking VK1LK

VK2 Division New South Wales 109 Wigram St, Parramatta NSW (PO Box 1066, Parramatta 2124) (Office hours Mon-Fri 1100-1400) Phone 02 9659 2417

Web: <http://www.ozemail.com.au/~vk2wm>
Freecall 1800 817 644
e-mail: vk2wm@ozemail.com.au
Fax 02 9633 1525

President Terry Davies VK2DKK
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VK3 Division Victoria 404 Victory Boulevard Ashburton VIC 3147 (Office hours Tues 10:00 - 2:30) Phone 03 9885 9261 Web: <http://www.wavc.org.au> Fax 03 9885 9269

e-mail: wavc@wacv.org.au
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web: <http://www.sant.wa.org.au>
e-mail: peter.raeche@bgpond.com
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Secretary John Bates VK7RT
Treasurer John Bates VK7RT

Broadcast schedules All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet amateur.aus.radio.amateur.misc news group, and on the VK1 Home Page <http://www.vk1.wia.ampr.org>

Annual Membership Fees. Full \$77.00 Pensioner or student \$70.00. Without Amateur Radio \$48.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATU sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup amateur.aus.radio.amateur.misc, and on packet radio

Annual Membership Fees. Full \$78.00 Pensioner or student \$61.00. Without Amateur Radio \$47.00

VIC3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary Frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RMJ 146.700, VK3RMK 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3RQH 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full \$78.00 Pensioner or student \$61.00. Without Amateur Radio \$47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.805 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.680 MHz FM (FM), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET QNEWS Text and real audio files available from the www.wiaq.wia.org.au

Annual Membership Fees. Full \$80.00 Pensioner or student \$71.00. Without Amateur Radio \$52.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 148.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATW Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.875 MHz FM. The broadcast is available in "RealAudio" format from the website at www.sant.wa.org.au Broadcast Page area.

Annual Membership Fees. Full \$82.00 Pensioner or student \$68.00. Without Amateur Radio \$54.00

VK6WIA, 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Calaly, 147.350 (R) Bassett, 146.900 (R) Mt William (Burbury), 147.000 (R) Kalanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900, 147.000, 147.200, 147.250 and 147.350 MHz. Also in "Real Audio" format from www.wiae.wa.org.au

Annual Membership Fees. Full \$85.00 Pensioner or student \$61.00. Without Amateur Radio \$36.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full \$85.00 Pensioner or student \$72.00. Without Amateur Radio \$52.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

VK1 Notes

Forward Bias

The guest speaker at the general meeting in July was Olaf Moon (VK1DX). Olaf spoke about his trip to the Dayton Hamvention 2001 that was held in Dayton USA, on 18-20 May this year.

Using his digital camera he had taken many photographs of people and places at the event, which he showed at the meeting by means of his laptop-driven projector. Olaf said that he regretted not having enough empty suitcases with him while there because of the many items of amateur gear that was available at very low prices. He saw refurbished Collins gear that had been silver-plated and looked newer than new!

The range of goods for sale was extensive and he noticed that everyone leaving the area carried antennas, transceivers, and all sorts of accessories. Those visitors who were interested in restoring radio gear were able to buy all

sorts of technical manuals and other printed material of bygone days.

One important point that Olaf made, was, that flying to Dayton, staying overnight in a motel, and buying a new expensive transceiver from any of the big names, was cheaper than buying the same thing here in Australia! Olaf brought back many pamphlets and other information about radio gear. If you want particular information about any aspect of the Dayton Hamvention, you can E-mail him on: olaf@act.gov.au

The ACT Division is preparing to support the Jamboree On The Air (JOTA) using the newly opened Farrer Amateur Radio Station VK1WI. The committee has appointed Alan Hawes (VK1WX) as JOTA coordinator together with Leanne Thurgar of the Scouts movement. Alan can be contacted by E-mail on: alan@wic.net.au and Leanne on:

Peter Kloppenburg VK1CPK

lthurgar@cyberone.com.au

At the time of writing this issue of Forward Bias-11 August-we have identified a need of antenna rotators. They are going to be used for the Farrer VHF and UHF antenna farm on the roof of the building. We can get away with using non-rotational quarter-wave groundplane antennas, but to make the station truly effective, 3 to 6 element beams on rotators would improve the chances of doing well in contests and DX contacts. If you have any rotators to give away or know where we can get surplus types, let the Division know. By the way, the Sunday broadcasts have been moved to Thursday evenings at 8.00 pm.

That's all for now. The next General meeting will be held at the Scout facility in Longenerong Street, Farrer. Cheers.

VK3 Notes

IRLP is taking shape

The use of Internet Repeater Linking Protocol to link amateur voice repeaters continues to be very popular since its main arrival here on Australia Day, 26 January this year.

IRLP enables radio amateurs to chat on a local repeater that is linked through the Internet to another repeater or repeaters elsewhere. It has greatly boosted amateur activity.

WIA Victoria is supporting a number of IRLP projects in VK3 through its Victorian Technical Advisory Committee Chairman, Peter Mill VK3APO.

Support has been offered to, and accepted by those involved in the Moorabbin and District Radio Club and Geelong Amateur Radio Club IRLP project based at Mt Anakie, near Geelong. Others proposing IRLP linking in Victoria will receive similar help.

WIA Victoria recognises the enormous potential value of IRLP technology in terms of it promoting experimentation and encouraging increased use of amateur frequency allocations.

In February this year the ACA made a ruling on IRLP, and in a letter to the WIA stated that repeater linking must comply with the Licence Condition Determinations (LCDs) for the Amateur Service. This includes licensing, identification, and watchdog timers.

While some six IRLP projects were already in various stages of operation and another six likely to appear in by the end of this year, the groups involved would have eventually had to come to grips with the licensing requirements of the LCDs.

However, an individual radio amateur tried to push the issue claiming that in his opinion, IRLP nodes were not subject to the LCDs.

The ACA did not agree, and was forced, due to the actions of the individual, to immediately apply the regulations under the LCDs, rather than to allow everyone operating an IRLP node some leeway to catch-up with all of the requirements.

WIA Victoria would like to assure all groups engaging in this activity that they have the WIA's full support, and that WIA Victoria looks forward to the future development of this technology.

Bill Rice VK3ABP LMWIA

The WIA Federal Council has recognised the service and contributions made by Bill Rice VK3ABP since 1972, by awarding him an honorary life membership of WIA. At the WIA Victoria AGM meeting in May the issue of a Life Membership for Bill was raised. The WIA Victoria Council, through a postal motion, received majority support

of the Federal Council for Life Membership to be granted. An article on the service to WIA Federal provided by Bill VK3ABP since 1972 is due to be published in September.

Federal Coordinators

The WIA Federal Council has appointed Ian Godsil VK3VP to the position of Federal Contest Coordinator. Ian has previously held this position, resigned for personal reasons, and then re-applied for the role that has remained vacant for many months. Welcome back Ian.

Candidates are soon to be considered for two other federal coordinator positions - that of Intruder Watch

Coordinator, left vacant by the retirement of Gordon Loveday VK4KAL, and Federal Awards Manager, on the retirement this month of John Kelleher VK3DP.

The WIA Victoria Council on behalf of members extends sincere thanks to both of these volunteers, with special recognition to John VK3DP for his 10 years of service as Federal Awards Manager.

Support for Solomon Islands

The National Disaster Council of the Solomon Islands is turning to amateur

radio to help provide emergency communications infrastructure.

The International Amateur Radio Club of Sydney has already arranged for shipments of equipment and training materials to the Pacific Island nation. Donated material can be delivered to the IARC 2 Griffith Avenue, East Roseville 2069, or left care of John Threadgold, Alistair, 4 Trade Place, Vermont, Victoria. Each donation will be personally acknowledged if you include your name and postal address. WIA Victoria will also be donating material to this cause.

VK7 Notes

Ron Churher, VK7RN

QRM

The Tasmanian Amateurs are really making a name for themselves in the province of Motor Sports. The "Saxon" Southern Safari held early August through some forbidding countryside in the south of the State was a great success communications-wise.

Our Hobart amateurs, 25 in all with family helpers, were responsible for all the rally command network and our normal repeaters together with portable crossband repeaters covered the whole field to the complete satisfaction of the organizers. The clerk of course thinks us amateurs should NOT be called amateurs - we can teach the higher echelons a bit about professionalism!

Plans are well in hand for the "Sunday Examiner Challenge" in the North-west area on the November long weekend when we are responsible for all the comms. except emergencies. (That's enough back-pats).

As part of the "Centenary of Federation" activities the Tasmanian Museum is exhibiting "Communications through the Century". We can hardly imagine what it was like in 1900 AD. The exhibit is a real eye-opener.

Our Monday night radio magazine programme "SPECTRUM" on VHF and HF continues to attract listeners from around Australia. This programme is designed to complement our usual

Sunday morning news broadcast. Listen to it at 7.30pm EST on 3.59 MHz. +- QRM and please join the callback.

An interesting idea. Most places around Australia have an FM "Tourist Radio" channel. Ours on the Northwest coast is broadcast on the "Spirit of Tasmania" as it comes into Devonport. Barry, VK7FR, who is one of the announcers on this station is broadcasting the amateur repeater frequencies for the benefit of any hams waiting to land in what we know is the closest place to "Heaven itself". Just another way to promote Amateur Radio.

Cheers for now. Ron Churher, VK7RN

VK4 Notes

Qnews

Submissions to Qnews and the VK4 website

Sending details to clubsinfo@powerup.com.au is THE way to have your groups publicised on the TeleText Pages AND VK4 area WebPages.

As well as that, messages sent via the QNEWS @ VK4WIE Server are automatically copied across to Ham Club News Editors and Office Bearers, Special Interest Groups and WIAQ Office Bearers, along with AR and QTC Magazine Editors.

Hopefully it is the SAFEST and QUICKEST way to get your organisations activity broadcast during QNEWS, plus alert all Clubs, WIAQ and AR Journal. NOTE THE ADDRESS: QNEWS @ VK4WIE.#BNE.QLD.AUS.OC .E-MAIL: qnews@powerup.com.au

If WRITING to QNEWS at the PO Box 199 Wavell Heights 4112 address, maybe a big note on the front that it's urgent and needs get to the newsroom ASAP wouldn't go astray!

from Alastair ELLIOTT VK4MV

WICEN Exercise Rally Qld 2001

An interview by David Jones (VK4OF) as reported to Graham Kemp (VK4BB).

(BB) So David, how did it all go?

(OF) Absolutely brilliantly Graham. Yes, all the months of planning proved very worthwhile. All equipment worked flawlessly, and I have to pay a big tribute to Nev VK4TX and Ken VK4KWM along with the other members of the

Queensland Digital Group. These guys have been a real asset since joining the team a few years ago.

(BB) And how many amateurs were involved David?

(OF) All up Graham, a team of over fifty amateurs and their families were involved. We had a few wives of amateurs, several harmonicas and all seemed to really enjoy themselves.

(BB) What was it like in the field?

(OF) Can't tell you about what it was like down in the forests, but I can tell you that it was blowing a consistent 50 knots on top of Mt Kandanga and it took Nev and I all our strength just to stand a vertical collinear on top of the tower. The wind and the cold were simply awesome and all stations in the field reported ice on the ground on both Saturday and Sunday mornings.

(BB) So what did the organising committee have to say?

(OF) Basically, they were very impressed. Essentially, it was as good as last year from our point of view and that was the best it had ever been. This year the scores were actually sent more quickly to Brian VK4X5 at the Oasis, but only

because we had more stations using packet at the starts as well as the finishes. And even the few that were using voice did not slow anything up more than a few seconds. Comments by the drivers and navigators are, I think, more important. They were very fulsome in their praise of WICEN, commenting that as soon as they were anywhere near a control or field service point, they were able to find out their scores and those of all the other competitors of interest. So it seems that everyone was very happy.

(BB) David, I've heard of your famous curries. How was the catering?

(OF) Oh just spot on Graham. We made an offer to Bob Carroll, from the State SES Communications HQ, to come for a visit and to join us on the mountain on Saturday night. State WICEN coordinator Ewan VK4ERM chauffeured Bob and his wife Christine up the hill and they were very impressed with the whole operation. The honey roast lamb, fine wines and a chocolate pudding all served in the dining room (you know a tent with walls), was probably as good as we get in

the field. Importantly, it does show the breadth of skills we bring to the SES as a communications resource, and I think we should showcase these capabilities as often as we can

(BB) Sounds terrific David

(OF) Yes Graham, as I said, we are all very pleased. The field packet and voice comms worked very well, the HQ operations conducted by Brian and Ewan worked perfectly, the repeater networks and all the links performed so what else is left? The Clerk of the Course, Mr Errol Bailey, will personally present the certificates of thanks at the next WICEN meeting. So team, if you can, be there in person to meet Errol. He really wants to meet you. I'd just like to add my sincere thanks to all the members of the WICEN Rally Queensland Team. It was a pleasure to work with all of you.

73s from Alistair



Eric Nissen VK4XN 1905-2001

One of the greats of Amateur Radio, a true Pathfinder, Eric was born in Ravensbrook, eventually settling in Dalby where he worked at HITSKES Radio Sales and Repairs then ABC Radio 4QS

In 1930 Eric passed his AOCP. Concentrating early in his AR career on the upper end of the HF spectrum 28 MHz and then 50 MHz. This area was unknown, regarded by most as a "wasteland". NOT TO ERIC VK4XN. His logbook is star studded! YH1RV, CR9CN Goa, PK's, the Dutch East Indies, XU's in China and that Tibetan station AC4YN All with Hi-Loss gear and no

digital readouts and QRP, 1.8 watts before 'upping' his power to a massive 7 (seven) watts!

Other achievements along the way, the 2nd VK to reach Europe, the 2nd VK to work Willis Island's first DXpedition with a dogpile 100 kHz wide. He earned the RF Roberts Trophy for achievements above 20 metres and the Empire Service Medal for his pioneering work in radio. Eric is survived by his wife of 60 years Gwen and 5 Children.

Rest In Peace, a true pathfinder,

Eric Nissen, VK4XN.
Forwarded by Alan Shawsmith VK4SS

air

WIA Victoria Treasurer Wanted

Subsequent to the retirement of Rob Hailey VK3NC, the Ex CEO, Barry Wilton, VK3XV has served in a voluntary capacity as Treasurer for the past 3 years. For personal reasons he is unable to continue beyond 31 December this year.

To assist with smooth transition period of at least 3 months, including the external annual audit, we need to fill this position as a matter of some urgency and invite any member who may be interested in finding out more about this volunteer position to contact us immediately

Basic knowledge of Microsoft Excel and MYOB together with standard double entry accounting practice would be most helpful

The workload is not onerous 30-40 minutes per week plus about 11/2 hours at the end of the month

If you can be of assistance please contact either the Secretary, John Brown VK3JJB or the Treasurer, Barry Wilton at wiaovic@wiaovic.org.au or telephone the WIA Victoria office on a Tuesday (03)9885 9261

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geenice@picknowl.com.au

The ALARAMEET Website

The web address is <http://alarameet2002.8m.com> and the email address for Jean VK5TSX is jeankopp@asiaonline.net.au

If you have access to the Internet and have any thoughts about attending the ALARAMEET in Murray Bridge next year, have a look at the website. You can apply to participate either definitely or hopefully. An outline of the activities planned is included. You can send an email to Jean VK5TSX, the coordinator of the MEET, or you can paste a message on the bulletin board for others to read. There are many options available.

There are links to the caravan parks where there are on site cabins for two, four or even for up to eight people to share, and a hotel where there is single accommodation at single prices as well as twin share and multiple share rooms. There are links to motels and a chance to look at some of the beautiful attractions of Murray Bridge. At the moment of writing applications for accommodation do have to be by email, phone or snail mail but we are hoping to have some of the accommodation online before this appears.

If you are not on email or the Internet do not despair. Write to Jean VK5TSX

QTHIR the Callbook and she will send you all the information you need. If you are a member of ALARA you will find much of the information about the venue and the program of events as well as a form to fill in indicating an expression of interest, all in the July Newsletter with addresses etc.

Do think seriously about coming, it is going to be a great MEET. Remember that you do not need to be a member of ALARA to attend. If you are travelling around Australia in spring next year, time your tour so you can be in Murray Bridge for the long weekend at the beginning of October.

The ALARA Contest

Hope you all had as much fun as I did. Now all we have to do is to send in our logs. They must be in by 31st October 2001. You can send them to Marilyn VK3DMS by snail mail, QTHIR the Callbook, or, for the first time ever, you can email them to her at gdsyme@hotmail.com

Please, if you do use email write your log in Plain Text, MSWord or MSExcel.

Do remember to send in your log, no matter how few the entries. We love to get them all and we know that there are always more stations heard than there are logs. We hope there will be a winner of the Florence McKenzie Trophy this year. We need to know that CW is still alive and well.

Tourists and touring

If you have read your ALARA Newsletter you will have seen that Ann VK4ANN and Val VK4VR with their OMs have had a great holiday in China. They look cold, all rugged up when they walked the Great Wall but I know they enjoyed it all.

This is the time of the year when all the

Southerners who went north for the winter are returning and all the Northerners are travelling South for the summer, so listen out for visitors passing through your home town and give them a welcome hand. From personal experience most of us know how pleasant it is to hear someone come back to the 2 metre call we send out as we approach a new place. Please keep listening and do say, "Hello, where are you? How long are you staying?" It will be appreciated.

At the end of August Marlene VK3WQ and OM Jim will be welcomed to Adelaide by a luncheon with some of the locals. Maybe this is something others could arrange for visitors, too. Phone contacts are good but so are eyeball contacts.

ALARA'S birthday

The Birthday Net on Saturday 28th on 80 metres was reasonable well attended this year, with eight YLs on at one time or another, including one ZL, Bev ZL1OS and one very new YL, Shirley VK5JSH, who came on the HF for the first time the previous Monday.

The following day, on the 28th there were 15 YLs (and 9 OMs) at the ALARA Birthday luncheon at the Flagstaff Hotel Lorraine VK5SLM and Myrna VK5TY, two of the original VK5 members were there along with two new licences Shirley VK5JSH and Carol VK5ZCH. Sue VK5AYL and Deb VK5JT and Faith VK5HFC who have been missing for a couple of years came along. Mary VK5AMD drove down from Bordertown and Janet VK5NEI came in from the other Wasleys on the other side of town.

The regular attendees, Meg VK5YG, Jean VK5TSX, Tina VK5TMC, Maria VK5BMT, Sue Mahoney and Christine VK5CTY were also delighted to enjoy the companionship of the day.

In VK3 and VK6 the regular luncheons in July were celebrated as special celebrations for ALARA's Birthday as their numbers are not large enough to warrant a separate even, however we are all together in friendship.

HAPPY BIRTHDAY ALARA



Carol VK5ZCH, Faith VK5HFC and Deb VK5JT



Sue VK5AYL, Shirley VK5JSH and Tina VK5TMC

More Impressive Transponder Tests on AO-40

Experimental transponder activity of the past month or two has given satellite buffs a taste of what AO-40 will have to offer when fully commissioned.

While the final orbit determinations and systems deployment are still being sorted out, controllers have twice switched the satellite into mode V/L-S so that users can test their systems and have some QSOs.

Comments on the AMSAT-BB have been glowing in their praise. It seems that the discussion on the BB regarding system requirements for the UHF/Microwave region has been fruitful and many users in a host of countries have their stations tweaked up and ready to go. Signal strengths have confounded the severest critics and hundreds of high quality QSOs have been recorded by people using modest uplink power and all manner of antennas from loop-yagis and helices to small parabolic dishes.

On a slightly unpleasant note, an old problem has re-surfaced. Recent years have witnessed a spectacular rise in unlicensed VHF/UHF operation in many parts of the world. The situation is extreme in some parts of Europe, quite bad in countries to our north and very evident in South and Central America.

Add to this the "interference potential" of so-called "low-interference-potential-devices" already being licensed and we can easily foresee difficult times ahead for satellites which have uplink receivers listening in our 2 metre and 70cm amateur bands. The "LIPDs" will probably only amount to a small rise in the ambient noise level but the unlicensed stations can radiate enough power to pose a threat to satellite users. It seems we have little defence against the illegal intruders and no case at all against those licensed to operate in what was once, due to its technical difficulty, our exclusive domain.

In terrestrial terms, city dwellers will be most affected. Satellite users can be victims however, no matter where they live and reports are coming to hand of this interference already rearing its head here in VK on AO-40.

Although there seems to have been an escalation in recent years it is by no means a recent phenomenon. I can remember the first time we encountered it was up at Mt Skene working on Oscar 7. The mode-B receiver picked up interference from 'up-north' when the satellite was low in our northern sky. In those days, circa 1974 there wasn't anywhere near as much activity, even commercially on 70cm as there is today. But it was still enough to mess up a good part of Oscar-7's nice high orbit and from down south here we only had a few minutes of mutual window with the New Guinea gang. They were mostly expat Aussies working on inter-island microwave links and the like in those days. I knew one or two of them and no matter how good your station was, it was a real challenge to have a contact due to the QRM.

Oscar-8's mode-J device also suffered very badly from 2m crud from the same source. Satellite receivers are vulnerable. They are by design, very sensitive devices and they operate in a low-noise environment. They are therefore susceptible to all manner of RF interference from the ground if it happens to fall within their receiver pass-band. Fortunately the interference is limited to the times when satellites are close in to Earth and near the horizon of the interfering transmitters. In the case of AO-40 this amounts to a very small time-slot and the situation is nowhere near as bad as in the case of LEO satellites with inherently short 'windows'.

The threat however does exist and will probably get worse. It was nicely anticipated by the designers of AO-40, which is equipped with RF systems up to the 10 GHz band. In the light of the recent UHF/Microwave transponder tests it looks to me like this is a good guide to the future of amateur radio satellite operations. We had better get

used to the idea of frequencies going higher and higher. It may be a case of "have-to".

But don't despair, it's not all that bad actually. Last month's column looked at the 2.4 GHz band and how to "do it on the cheap". Radio amateurs are a resourceful lot and new ideas are coming up all the time. Check the AMSAT-BB, you'll be pleasantly surprised at the level of technical activity. It may appear to be a chore to go higher and higher in frequency but there's help aplenty available.

There are practical advantages too. Antennas get smaller and easier to handle (and therefore hide). Equipment becomes tiny. There have already been stories of "suitcase-sized" stations both digital and analog, being put together by

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK's Graham Retcuff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA.
5001.
Graham's email address is:
vk5agr@amsat.org

flat-dwellers, sailors and travelers. Even though AO-40 is still being brought online, the next generation AMSAT is already in the planning stage. Ideas are currently being sought by the design team. With AO-40's performance receiving pretty universal acclaim as each test is carried out it's not hard to foresee how the designers will view the selection of transponder frequencies for future Oscars.

AO-40's SCOPE Camera Tests successful

Just as this column was going to print Yoshi Takeyasu JA6XKQ, issued a bulletin telling of the successful test of his team's SCOPE camera on board AO-40. The first picture is available for download from the JAMSAT and AMSAT-DL web sites. It shows a slim crescent Earth shining blue and white against the blackness of space. A remarkable picture and a credit to the SCOPE design team led by Yoshi. At the time of writing the direct URL for this picture was:

http://www.jamsat.or.jp/scope/010808/index_e.html

Commissioning of the SCOPE cameras continues in co-operation with the

RUDAK (digital comms expt.) team in Germany. Both the narrow and wide angle cameras were checked and found OK. This has been a stunning example of the success of both the SCOPE cameras and the RUDAK digital communications experiment. We can look forward to some spectacular imaging from AO-40 and no doubt some interesting new modes of operation from RUDAK. Many VK amateurs will remember Yoshi during his time spent working at NEC in Melbourne.

More on S-band Equipment from AMSAT-ZL

It seems there is also a flurry of experimental activity across the Tasman regarding S-band equipment modifications suitable for AO-40 operations. The latest AMSAT-ZL Newsletter included an article on four of the more popular S-band downconverters. Following this, additional bench tests have been conducted and the results posted on the AMSAT-ZL page. See if you can get hold of a copy of the newsletter or try:

<http://www.nzart.org.nz/amsatzl/downcons.html> for more details.

Launch of APRS Satellite - PCSat

In a recent report to AMSAT News Service, Bob Bruninga, WB4APR, said that the launch of PCSat in early September 2001 will represent a new direction for Amateur Radio satellite communications. PCSat will offer travelers the ability to send and receive satellite message traffic and to report position and status from anywhere on Earth using only a handheld radio. This development raises exciting possibilities for those amateurs already experienced in APRS operations. PCSat will use conventional APRS packets at 1200 or 9600 baud, and is designed to work with handhelds or mobiles using omnidirectional antennas. As the launch date nears, Steve, K4HG, will be putting together a special PCSat web page. In addition, to see the current world map of APRS connectivity, visit:

<http://www.aprs.net>

The design parameters of PCSat can be found at:

<http://web.usna.navy.mil/~bruninga/pcsat.html>

Information about APRS satellites can be found on the WB4APR web site. <http://web.usna.navy.mil/~bruninga/astars.html>

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AHRS Club News

Adelaide Hills Amateur Radio Society

As usual the July meeting of AHRS was the Mid-year Dinner, however this year the venue for the dinner became a moveable feast

Previously the dinner has been held at the Blackwood RSL but this organisation encountered financial difficulties and was forced to close its doors. This put AHRS in a spot, along with a number of service clubs etc., which had been used to using the same venue for meetings and dinners.

We were fortunate to be accommodated by the Belair Park Country

Club. This is part of the Belair Golf Club and the building overlooks the fairways, which are lighted at night – a very pleasant view from the windows of the dining area.

A pleasant evening of fellowship was enjoyed as the photo shows. It is expected that future dinners will again be at the Blackwood RSL as it has gained a reprieve.

The next meeting will be addressed by Grant VK5ZWI and will deal with mobile phones – today and into the future.

continued next page



AHRS Dinner. L to R, Brian VK5SV, his XYL Mary, Vivienne XYL to, Leith VK5QH, and Meg VK5YQ

DONALD L. HARWOOD VK7RH

Spring has sprung...

...and already I am noting some propagational changes. Signals are now starting to come in the early evening hours yet are still fading out, particularly on higher frequencies. I expect that this should gradually improve as Summer approaches.

A press release has been issued by Merlin Communications, the UK firm responsible for maintaining the BBC World Service senders, announcing that they had taken over management of the short-wave transmitting facilities of United Arab Emirates Radio, both in Dubai and Abu Dhabi. However the facilities presently being utilized are in Abu Dhabi, which has not been on HF lately unlike UAE Radio in Dubai. This will allow other external broadcasters such as NHK in Japan and RCI to also utilize these strategic facilities.

It is quite surprising that some religious broadcasters, such as AWR and Family Radio, have signed up for the facilities as part of the Merlin agreement. The UAE is very much an Islamic nation and it seems very much out of character, especially seeing that nearby Saudi Arabia and Iran are very much opposed to Christian activities within their borders.

Here is the tentative schedule I received via the EDXP forum, maintained by Bob Padula.

The introductory AWR schedule from Al Dhabyaya shows the usage of all four transmitters in services beamed to Africa and Southern Asia, with each unit operating at 250 kW. It is anticipated that this schedule of five hours daily will be

markedly increased with the commencement of the new Transmission Period in October.

evening hours and was heard relaying the BBC World Service during the civil war there earlier this year

I was recently asked whether there is an audio version of this magazine for white-stick operators and SWLs. I seem to recollect that there was a Disabled Amateur Radio club in Glenroy, Victoria who had this service yet it is unclear if this facility is still around. Can anybody assist?

I notice that there is a very excellent relay China National Radio (CNR) on 17895 and 17565 kHz from 2200 UTC and going past 0900 UTC. These networks were best heard in our local evening hours yet the use of the 16-metre band, has allowed us to hear them during our daylight hours. The Chinese extensively use HF for their domestic broadcasting, as there are significant gaps in their MW and VHF coverage. Several provincial stations also have their own programming on short wave and have English J/Ds, which certainly assists the listeners. It is worth noting that Chinese mainland broadcasting stations do not usually operate above the 16-metre band.

Well that is all for this month. Until next time, the very best of listening

73 Robin L. Harwood VK7RH

Introductory Daily Schedule

Africa

0300-0330	11975	250	Amharic
1700-1800	17875	250	Afar, Oro
0300-0400	11945	250	Oro, Tigrinia
1630-1800	15520	250	Somali, Amharic, Tigrinia

Southern Asia

1330-1400	15495	250	English
1400-1430	15385	250	Urdu

USA

Family Radio, California uses the new facility, 1400-1700 on 17730 in English to Africa.

Canada

RCI uses the relay 1800-1859, on 17820, with English to Africa.

In another development, the Solomon Island Government has offered to relay the BBC World Service, throughout the islands, provided that the British Government paid for it. It is unknown whether it would be accepted. Honiara is easily heard on 5020 kHz during our

Club News continued

Oxley Region Amateur Radio Club Inc

The ORARC held their AGM on August 4 and appointed Bruce Walker, VK2HOT as their President for the ensuing year.

Bob Brodie, VK2EJK is the Vice President. Alan Nutt, VK2GD, Secretary and Roy Burgess, VK2YOR, Treasurer.

Retiring President Bob Brodie gave a glowing report on the past year with thanks to the repeater committee who kept both VK2RPM and VK2RCN on-air

under the guidance of Trevor Thatcher, VK2TT.

The annual Field Day was a fitting climax for the year that included activities such as the Classic Billy Cart Derby where special communications were provided, JOTA, John Moyle Field Day, Lighthouse weekend and the various BBQ's and picnics.

Thanks also to the local Shire Council

who contributed a grant for field equipment for emergency and community work. The ORARC has 40 members and meets twice a month at the S.E.S Building in Port Macquarie.

Visitors are most welcome and more information can be obtained by contacting the Secretary, Alan Nutt on 02 6582 3557 or by email at anut@ozemail.com.au

More Club Notes on page 39

AR Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

Information used in this column is obtained from overseas magazines, web sites and broadcasts. If you have any interesting news from overseas you would like to share with our members, please send.

Poland prepares a new License class

The Polish Radio Amateur organization PKZ, together with the Polish Telecom has prepared a new licence class. This proposal will introduce a new class D (CEPT - Class 2). A CEPT licence holder can operate and run an Amateur Radio station, without applying for a licence, in any of the participating countries. The purpose of this new type of class is to allow its holder to operate on several HF frequencies bands without passing any Morse code examination. This is not particularly new to Australian amateurs, but very interesting is the statement made by both participating groups - The aim of the proposal is to interest people in amateur radio, and allowing them to use the new digital modes like RTTY, AX25, SSTV, MT63, PSK31 and others on the HF bands. Young people of today are not interested to learn the digital code (Morse code) from a past century.

Translated from a report by SP6LB

Electronic QSL cards are not valid for the DXCC

Electronic QSL cards, called E-QSL Cards have been around now for quite a while. An E-QSL card can be downloaded, confirmed and printed on your printer. The ARRL has announced that at present such a QSL does not count towards the DXCC. According to informed sources the ARRL is working on a solution called "Logbook of the world". The project should be finished by the end of 2002.

Translated from cq-dl 7/2001 by VK4BDO

Starting young in the UK

A few months back, Richard Horton, G3XWH and Hilary Claytomsmith, G4JKS organized a four day "crash course" for school teachers to introduce them to Amateur Radio. The major sponsors of this seminar were the RA (UK Radio Communications Authority).

the RSGB and STELAR. 19 teachers took part and at the end of the course a mock examination was held. 18 of the 19 passed. Some have now become Radio Amateurs. The Amateur Radio fraternity in the UK had donated equipment to the schools so that they can have on-air capabilities.

Now that's starting with the young.

Hamfest-Europe

Last month we wrote about the famous USA Dayton Hamfest. Europe has a similar Hamfest that is held at Friedrichshafen in Germany from June 29 to July 1. This year it attracted some 18,000 visitors. The Deutscher Amateur Radio Club says that's about the same as last year's attendance. DARC said dealers reported a buying trend this year toward complete stations, receivers or scanners as opposed to parts and kits. ARRL Executive Vice President David Sumner, K1ZZ, was among those who attended the DARC convention—which is the largest ham gathering in Europe and the most international event of its type anywhere. Also in the ARRL contingent were First Vice President Joel Harrison, W5ZN, International Affairs Vice President Rod Stafford, W6ROD, and HQ staffers Mark Wilson, K1RO, and Dave Paiton, NT1N. As in the past, ARRL had a booth in the exhibit area. "We were busy in the ARRL booth from the opening at 9 AM Friday right through early afternoon Sunday, with Friday and Saturday being the busiest," Sumner reported. "The DXCC side was even busier, with about 32,000 cards examined by Sunday afternoon! This is about twice the volume of the previous year."

Sumner said the increase appeared mainly to be the result of The DXCC Challenge While in Germany, Sumner and Paiton visited DARC Headquarters.

Ham Radio 2002 will be June 28-30. In 2003 Ham Radio will move to a new, more spacious facility near the airport.—DARC, David Sumner, K1ZZ

(from ARRL Newsletter)

Commonwealth Games

From the 25 July 2001 until 5 August 2002, 9 special event stations will be operating from the Manchester area of England. The special event will mark the 12 month count down to the start of the 17th Commonwealth games. There is an award set up for this event and an Internet gateway is being provided so that the VHF operators can work the award also. HF modes of operation will be CW, PSK31, SSTV, AMTOR, RTTY and PHONE. A list of all stations and further details are available from www.geocities.com/gbgames2002 (Kev GOTOG via Peter Naish VK2BPN and QNEWS)

ARRL petitions for new 60 metre amateur band

According to the ARRL News Letter of 28 July, the ARRL has filed a petition with the FCC for allocation of 5.250 to 5.400 MHz to the Amateur Service on a domestic (U.S. only) secondary basis.

The League feels this would aid emergency communication activities and fill the propagation gap between 80 and 40 metres. They are proposing phone, CW, data, imaging and RTTY be approved running maximum approved power. Access by General Class and higher licence holders.

WA2XSY has been carrying out experimental transmission in the 5 MHz band since 1999 to investigate its viability and confirms its reliability

(from ARRL News)

Adventure Radio

From IOTA to SOTA

The European Adventure Radio Society has proposed a new award scheme called "Summits on the Air" (SOTA). The idea of the scheme is to encourage lightweight portable operation from mountain tops. An exciting format has

been devised by John Linford, G3WGV, that has some elements in common with the popular RSGB Islands on the Air awards programme. The web site is at www.qsl.net/ars-eu/proposed.html

(From Aug 2001 RadCom)

Tristan Da Cunha

Many of you may have read about the devastating hurricane that hit the tiny British South Atlantic island of Tristan da Cunha at the end of May. The storm caused the total loss of transceivers, tower and antennas at the home of Andy and Lorraine Repetto, ZD9BV and ZD9CO. Colin Topping, GM6HGW, launched an appeal for the donation of Amateur Radio equipment to allow Andy and Lorraine to get back on the air. You'll be pleased to learn the appeal was successful and a Yaesu FT102, ATU and Cushcraft R-6000 have been donated. The full story of the hurricane complete with pictures can be found at www.sthelena.se/tristan/disaster/

(From Aug 2001 RadCom)

"Logbook Of The World" software design under way

Software design to support the electronic contact-verification program is moving full speed ahead. ARRL Manager Wayne Mills, N7NC, said the ARRL hopes to make LOTW software modules available soon to vendors for incorporation into their logging programs.

The logging software modules are being developed as part of the Trusted QSL open-source project headed by Darryl Wagoner, WA1GON.

At the heart of the Logbook of the World concept is a huge repository of log data provided by operators—from individual DXers and contesters to major DXpeditions—and maintained by ARRL. Mills says the system will benefit big and little guns alike by providing quick QSO credit for awards offered by ARRL, and, it's hoped, for awards offered

by other organizations as well.

Once it becomes available—which could be as early as the middle of next year—*Logbook of the World* will accept authenticated data directly from computerized logs via the Internet. "This is an e-mail based system that uses easy-to-obtain digital signatures for authentication," Mills said. "Once you get your digital certificate, a few keystrokes will do the trick."

Mills said the program envisions user access to the LOTW "confirmed database" so an operator can see what "matches" turn up—such as confirmation of new DXCC entities, states or grid squares. "We'll also publish a list of logs that have been submitted," he said, adding that operators may access the LOTW database once they've uploaded their own log data.

Mills said that he hopes to be able to announce a specific inauguration date for Logbook of the World within a few months.

(ARRL Newsletter Aug 3)

AR Club News

News from the Moorabbin & District Radio Club

MDRC holds AGM

The Moorabbin and District Radio Club held its Annual General Meeting and elections on Friday July 13. In his report outgoing president Lee VK3GK cited the club's internet radio linking project, improvements to APC Newsletter, a successful hamfest, APC News, and work towards the commencement of study courses (which began last month) as the club's main achievements over the last year.

Key positions for 2001-2002 are as follows:

President	Keith VK3JNB
Vice President	Tony VK3CAT
Secretary	Jerry VK3MQ
Treasurer	(vacant, VK3JNB acting)

Tony VK3JED, Eddie VK3TYR, Graeme VK3GRL and Lee VK3GK were elected to the committee. Other positions are carried out by the following: Library Alistair VK3KAD, Education, QSLs and Station Tony VK3CAT, Public Officer

Ken VK3TKR and Publicity Peter VK3YE.

After the formal part of the meeting, we were fortunate to have Tariq Hasnain from Winradio Communications. Tariq spoke on his company's range of computer-controlled radio receivers and accessories such as portable antennas, antenna switches and field strength indicators. Winradio has been an Australian success story, with customers worldwide. Those present left with much literature and a demonstration disk. Our thanks to Winradio and Tariq for the presentation.

Radio on Rails Results

Radio on Rails took place in April, albeit with fewer train and tram mobile stations than previous years. However many memorable contacts were had, thanks to good propagation on 10 metres. This enabled stations as far afield as ZL and VK6 to work train mobile stations via the 10m/70cm

VK3RHF repeater. Results are as follows:

Section A—Transmitting Mobile

VK3JED	84 points
VK3YE	54 points

Section B—Transmitting Home

VK3TYR	12 points
Congratulations to all stations who took part. Certificates have been sent to all participants.	

Coming Meetings

Ken VK3CEA has been busy getting speakers for our meetings. Planned speakers for the remainder of the year include:

- September 21: Peter Young, 2000 Olympic Games Communications
- October 19: David Edwards, Lightning Protection
- November 16 Jim Linton, WIA Arms and Activities

Peter Parker VK3YE
Publicity Officer

Moorabbin & District Radio Club
parkerp@alphalink.com.au
(03) 9569 6751



Contests

Ian Godall VK3VP

Contest Calendar September – November 2001

Sep	1	CCCC PSK31 Contest		
Sep	1-2	All Asian DX Contest	(SSB)	
Sep	8/9	Worked All Europe DX Contest	(SSB)	(July 01)
Sep	16	FM Funday	(FM Simplex)	(Sept 01)
Sep	15/16	Scandinavian Activity Contest	(CW)	(Aug 01)
Sep	22/23	CQ/RJ WW RTTY DX Contest		(Aug 01)
Sep	22/23	Scandinavian Activity Contest	(SSB)	(Aug 01)
Oct	6/7	Oceania DX Contest	(SSB)	(Sep 01)
Oct	6	European Sprint	(SSB)	
Oct	13	European Sprint	(CW)	
Oct	13/14	Oceania DX Contest	(CW)	(Sep 01)
Oct	20/21	Worked All Germany DX Contest	(CW/SSB)	
Oct	20	Asia-Pacific Sprint	(CW)	
Oct	27/28	CQ WW DX Contest	(SSB)	
Nov	1-7	HA-QRP Contest		
Nov	4	High Speed Club CW Contest		
Nov	9-11	Japan International DX Contest	(SSB)	
Nov	10/11	WAE RTTY Contest		
Nov	10/11	OK/OM DX Contest	(CW)	
Nov	17/18	LZ DX Contest	(CW)	
Nov	17/18	All Austrian 160m DX Contest	(CW)	
Nov	17/18	IARU 160m Contest	(CW)	
Nov	24/25	CQ WW DX Contest	(CW)	
Nov	24/25	CQ WW SWL Challenge	(CW)	
Nov	30-2	ARRL 160m Contest	(CW)	

Greetings to all readers. I hope that you did well in the RD this year. My sincere thanks to those who replied suggesting things for the VKHAM Contest site. I am still learning about it all, but I shall do my best to set it up in a way that you feel is easy for you. I am also very pleased to record that John VK4EMM has given permission for material from his previous 'Radiosport' site to be used in our new pages. Thank you most sincerely, John.

Logger Survey

During June a survey of most-used contest logging software was held via Internet. It was interesting to receive the following summary of results recently

Logger	Votes
CT	108
SD	107
TRiLog	72
Writelog	48
NA	3

Full results may be viewed at <http://www.435dxn.org>

I was amazed at how many different programs were listed for voting (over 40 it seemed), but not surprised that the popular "big three" came out on top. As a user of SD (Super Duper by Paul O'Kane EI5DI) myself, I can assure readers that it is an excellent program which supports not only many fixed international contests, but has variable

areas built in for use with other events. I have used mine for several VK and ZL events this year.

I can also record that the support by the author is superb in that he quickly answers any questions that may arise, that he is constantly alive to requests for expansion of the program and that there is a friendly user group readily available for help with any thoughts. A trial version of SD is available at <http://www.ei5di.com/>

New Contest

I was most interested to receive information about the new FM Funday (details below). Even though this is for VK2, it is an excellent idea and I commend it to other Clubs.

Let's face it, there is not huge interest in the worldwide contests in this country and something of a regional

nature may be just what is needed to stimulate local interest and "have fun". Certainly, such an event need not carry the pressure of the traditional contest to make your contact and get off to find another.

Instead, there would be room for a chat to someone that you may not have heard for awhile, as well as giving numbers. Please consider this type of activity for your Club, perhaps in conjunction with a field trip or special day relevant to your area/Club/State etc.

Oceania DX Time Again

October will bring the annual Oceania DX Contest. Last year there was great effort to revitalise this event and the results were most impressive to say the least. Under the Chairmanship of Brian Miller ZL1AZE and a very hard-working committee, your participation on either or both of the first two weekends in October is invited. Please make a note of the dates and times and plan now to join in to represent our VK/ZL areas to the world.

73 and good contesting, Ian Godsill VK3VP

Results QRP Day 2001

from Ron Everingham VK4EV #130
Contest Manager

*1 st	VK3VP/QRP	Ian	198
2 nd	VK5NJ/QRP	John	51
*3 rd	VK3LK/QRP	Adrian	34
*4 th	VK2KET/QRP	Alex	12
5 th	VK4SN/QRP		11
*6 th	VK5BLS/QRP	Barry	8
*6 th	VK3YE/QRP	Peter	8

*Denotes Station used Home Brew equipment.

Manager's Comment

Thanks again to all who took part in this year's contest and special mention to the top scorers for such terrific results. Conditions on the day were not favourable for QRP (in VK4) due to storm activity in Western Queensland. 80m and 40m were very noisy here on the night. It is pleasing to read the logs and note the various types of Home Brew equipment. Keep up the good work.

73 de Ron VK4EV #130

Results Sangster Shield 2001

from Stan White ZL2ST

This is a ZL QRP Contest held in June each year.

1 st	ZL1PC	Paul	21862
2 nd	ZL1ALZ	John	19376
3 rd	ZL1AH	Ken	18394
1 st place VK section	VK3VP/QRP	Ian	1380

FM Funday Contest

From Roger Cooper VK2TEA

Sunday, 16 September, 2001

Object: To work as many stations as possible using FM simplex in the appropriate portions of the 6m, 2m and 70 cm bands.

Region: VK2 originating stations.

Contacts from outside VK2 are allowed, provided that the originating station is within VK2.

Date: Sunday, 16 September, 2001.

Time: Morning, Afternoon and Evening sessions commencing at 1100 hours, 1400 hours and 1900 hours EST. Contest will finish at 2359 hours EST.

Bands: 6m, 2m and 70 cm bands.

Mode: FM simplex only. No repeater contacts permitted.

Categories: Single operator; multi-operator. Multi-op. stations must enter under one callsign.

Sections: (1) Low Power (five watts or less); (2) High Power (six watts or more).

Exchange: Callsign; time; RS; serial number starting at 001 and incrementing by one for each contact. Stations may be logged once per band in each session.

Score: One point per contact. No multipliers.

Send summary only of all sessions that you have entered.

Logs will be called from those entries look like winning something. Send to: Roger Cooper VK2TEA, PO Box 50, Woodford, 2778 or by e-mail to: rogerco@ozemail.com.au by 16 October 2001. Local stations may call in their entries on the 146.450 MHz Net most nights between 1930-2030 hours EST.

Certificates will be issued for first three place-getters in each session and all day in both sections and categories. Winners notified by 1 November 2001.

Web site:

<http://members.ozemail.com.au/~rogerco/fmfunday.html>

Rules for the 2001 Oceania DX Contest

1. SPECIAL NOTES for the 2001 Contest

- The start time has been brought forward to 0800 UTC (2001 rule change)
- Multi-Operator Single-Transmitter category added and Multi-Operator Single Band category deleted (2001 rule change)
- Contacts between stations in the same Oceania country are permitted (2000 rule change)
- The 160m band is included (2000 rule change)
- Electronic logs are encouraged—preferably in the CABRILLO format (2001 rule change)
- Further information on the contest is available from the Oceania DX Contest web site at www.nzart.org.nz/nzart/update/contests/oceania/

2. THE AIM of the contest is to promote HF contacts with stations in the Oceania region (VK, ZL, Pacific Islands and other locations within the IARU "Worked All Continents" Oceania boundary).

3. CONTEST PERIODS:

PHONE Contest: 0800 UTC

Saturday 6 October to 0800 UTC

Sunday 7 October

CW Contest: 0800 UTC Saturday 13 October to 0800 UTC Sunday 14 October

4. THE OBJECT is for

- Oceania transmitting stations to contact as many stations as possible both inside and outside the Oceania region.
- Non-Oceania transmitting stations to contact as many stations as possible inside the Oceania region. Contacts from one non-Oceania to another non-Oceania station are NOT permitted.
- Oceania receiving (SWL) stations to hear as many stations as possible both inside and outside the Oceania region

*Non-Oceania receiving (SWL) stations to hear as many stations as possible inside the Oceania region. Logging of non-Oceania stations is NOT permitted.

5. BANDS: 160 m-10 m (no WARC bands)

6. ENTRY CATEGORIES

- SOAB Single Operator All Bands

Single operator stations are where one person performs all operating, logging and spotting functions. Only one transmitted signal is allowed at any time

- **SOSB**-Single Operator Single Band. Same as SOAB except that operation is confined to a single band
- **MOST**-Multi-Operator Single Transmitter All Bands. Only one transmitter and one band permitted during the same time period (defined as 10 minutes) Exception: One—and only one—other band may be used during any 10-minute period if—and only if—the station worked is a new multiplier. Logs found in violation of the 10-minute rule will be automatically reclassified as MOMT.
- **MOMT**-Multi-Operator Multi-Transmitter All Bands. No limit to transmitters, but only one signal and running station allowed per band. Note: All transmitters and receivers must be located within a 500-metre diameter area, or within property limits of the station licensee, whichever is greater. All operation must take place from the same operating site.
- **SWL**-Short Wave Listener (Receive Only) All Bands. The same callsign for the "station being worked" must not appear more than once in any group of 3 consecutive log entries.

7. EXCHANGE: RS(T) report plus a three or four digit number starting at 001 and incrementing by one for each contact. MOMT entries may use a separate serial number sequence for each band

8. MULTIPLIER: The multiplier is the number of different prefixes worked. Note that the same prefix may be counted once on each band for multiplier credit

A prefix is the letter/numeral combination that forms the first part of the amateur call—the same as the CQ WPX contest definition

Examples of valid prefixes are N8, W8, WDB, HG1, HG19, KC2, OE2, OE25, etc. Any difference in the numbering, lettering, or order of the same shall constitute a separate prefix. A station operating from a DXCC country different from that indicated by its callsign is required

to sign portable. The portable prefix must be an authorized prefix of the country/call area of operation. In cases of portable operation, the portable designator will then become the prefix. Example: N8BJQ operating from Wake Island would sign N8BJQ/KH9 or N8BJQ/NH9. KH6XXX operating from Ohio must use an authorized prefix for the U.S. 8th district (W8, K8, etc.). Portable designators without numbers will be assigned a zero (0) after the second letter of the portable designator to form the prefix. Example: N8BJQ/PA would become PA0. All calls without numbers will be assigned a zero (0) after the first two letters to form the prefix. Example: XEPTJW would count as XE0. Maritime mobile, mobile, /A, /E, /I, /P, or interim licence class identifiers do not count as prefixes.

Special event, commemorative, and other unique prefix stations are encouraged to participate. Prefixes must be assigned by the licensing authority of the country of operation.

9. CONTACT POINTS: All entries score twenty points per contact on 160 m; ten points on 80 m; five points on 40 m; one point on 20 m; two points on 15 m; and three points on 10 m.

Note that the same station may only be counted once on each band for contact points credit.

10. THE FINAL SCORE: SOAB, MOST, MOMT and SWL score = sum of contact points from all bands multiplied by the total number of prefixes worked on all bands (remember that the same prefix can be counted once on each band).

SOSB score= sum of contact points on the band multiplied by the total number of prefixes worked on that band.

11. GENERAL LOG REQUIREMENTS:

SOAB, SOSB, MOST and MOMT entries are to submit a log showing the following details for each contact – date; time in UTC; callsign of station worked; RS(T) and serial number sent; RS(T) and serial number received; contact points claimed and new multiplier prefixes.

SWL entries are to submit a log showing the following details for each contact – date; time in UTC; callsign of "station heard"; callsign of "station being worked"; RS(T) and serial number sent by the heard station;

contact points claimed and new multiplier prefixes. Note that the same callsign may appear only once in any group of 3 consecutive entries in the "station being worked" column

Multiplier prefixes should only be entered the FIRST TIME that they are worked on each band

SOAB, SOSB, MOST and SWL logs must be submitted in date/time order. MOMT logs must be grouped by band and then in date/time order.

All logs must be checked for duplicates, correct Contact Points and Multiplier prefixes. The log must be accompanied by an alpha/numeric checklist of claimed multiplier prefixes worked on each band. Duplicate contacts must be clearly shown—DO NOT delete duplicate contacts.

12. SUMMARY SHEET REQUIREMENTS:

The log must be accompanied by a Summary Sheet that clearly states

- The station's callsign
- Operator name/s and callsign/s
- Entrant's name and mailing address
- Mode and Category entered
- Contact points claimed on each band
- Number of multiplier prefixes claimed on each band
- Total claimed score
- A declaration that all contest rules and radio regulations have been observed

Examples of log and summary sheets can be viewed and downloaded from the Oceania DX Contest web site

13. ELECTRONIC LOGS

are encouraged and required from those who use a computer to record or prepare the logs

The CABRILLO format is preferred. Please ensure that you fill out all of the header information including your club affiliation. If you submit a CABRILLO log, no additional summary sheet or alpha/numeric check list of multiplier prefixes is required. Also there is no need to identify the contact points claimed or new multiplier prefixes for individual contacts. See the Oceania DX Contest web site for more information about the Cabrillo format.

If you cannot submit a CABRILLO log, then you may submit the ASCII

output from most of the popular logging programs such as TR, CT, NA, Writelog etc. In this case a separate summary sheet and alpha/numeric checklist of multiplier prefixes is required.

Please name your files with the station's callsign and the file type. Example: ZL2WB submits a CABRILLO file—it should be named ZL2WB.CBR. If ZL2WB chose to submit a non-CABRILLO file such as CT's ALL file then the log file should be ZL2WB.ALL and the summary file should be ZL2WB.SUM.

The file/s are to be preferably submitted as an email attachment to phocatest@nzart.org.nz (for PHONE entries) or cwocatest@nzart.org.nz (for CW entries). The station's callsign and mode (PHONE or CW) must be stated in the email subject line. Alternatively the file/s can be saved on a 3.5" diskette and mailed to Oceania DX Contest, c/o Wellington Amateur Radio Club Inc., PO Box 6464, Wellington 6030, New Zealand. In this case the station's callsign and mode (PHONE or CW) must be stated on the front of the package.

14. PAPER LOGS:

Official log and summary sheets can be downloaded from the Oceania DX Contest web site or obtained by sending a Self Addressed and Stamped Envelope to the address below with sufficient postage. If official forms are not available, then you may make your own in accordance with the general requirements above.

Paper logs are to be sent to Oceania DX Contest, c/o Wellington Amateur Radio Club Inc., PO Box 6464, Wellington 6030, New Zealand. Please use airmail if you are submitting a log from outside VK or ZL.

15. DEADLINE: All logs must be emailed or postmarked NO LATER than 28 November 2001. The reception of logs will be confirmed via email (for email submissions) and posted on the Oceania DX Contest web site.

16. AWARDS: Certificates will be awarded to the top scoring station in each category listed under Section 6 for each IARU WAC continent and each country.

In addition the following trophies are available:

- The Frank Hine VK2QL Memorial Trophy—awarded to the VK SOAB

CW entrant with the highest score. The recipient receives an attractive wall plaque for permanent recognition of the achievement.

- The Ron Wills ZL2TT Memorial Cup—awarded to the Oceania SOAB PHONE entrant with the highest score. The recipient receives a miniature cup for permanent recognition of the achievement.

Additional awards may also be given at the discretion of the Contest Committee.

17. DISQUALIFICATION: Violation of the contest rules, unsporting conduct, taking credit for excessive duplicate contacts, unverifiable contacts or multipliers will be deemed sufficient cause for disqualification. The use of non-amateur means such as telephones or email, or the use of packet, to solicit contacts during the contest is unsporting and the entry is

subject to disqualification.

Note that any entry may be disqualified if the overall score is reduced by more than 5%. Score reductions do not include correction of arithmetic errors.

In matters of dispute, the actions and decisions of the Contest Committee are final.

18. FURTHER INFORMATION:

The latest information about the contest will be published on the Oceania DX Contest Web site at www.nzart.org.nz/nzart/update/contests/oceania/.

Inquiries can be emailed to occtest@nzart.org.nz or posted to Oceania DX Contest, c/o Wellington Amateur Radio Club Inc., PO Box 6464, Wellington 6030, New Zealand

Brian Miller ZL1AZE

BT

Remembrance Day Post Script

I write this on Monday morning after the RD – with some sadness, as I shall mention in a moment.

Some general comments: - My principal mode is always CW and I was pleased to hear a goodly number of signals on 80 and 40 metres, both on Saturday night and Sunday afternoon. 15 metres Phone was good on Sunday afternoon and apparently 20 metres was also during Sunday morning (I am a church organist, so my time is completely taken up on Sunday mornings). I heard no CW on 15 or on 10m during Sunday afternoon, although I heard a VK say that he worked some SSB on 10 during the morning. I was also very pleased to hear some ZLs taking part. Thank you most sincerely.

I felt that 160 metres did not get the attention that it deserves this year. Am I wrong – is it just a poor antenna system here? I kept one radio solely on 160 and was disappointed at the usage, considering this band scores double points! I would be interested in your comments.

Separately I operated VHF and again my impression was that there was not as much activity in Melbourne as in previous years. For the first time in many, many years I had 70 cm FM available, but I found that both this and 6m were virtually "by appointment". This is no problem for me, but I was puzzled at the approach.

Interestingly, some chats I had during the quiet moments (yes, I did what I have always railed against in this column)

suggested that the Internet was to blame. Again I would welcome comments from others, especially interstate operators.

For the first time ever I used logging programs to keep track of the QSOs. I know that this is a debatable point in view of the rule which says "physical control of the station must be in the hands of the operator at all times" – but it sure makes it very easy to track dups and elapsed time between contacts. And I can only marvel at those with the nous to build such programs!

Sad Note

The sad note I mentioned was when I arrived home at lunchtime on Sunday to be greeted by the news that Capt. Roger Alston, who had prepared the talk for this year, had died in his sleep at his home in Wiltshire UK, overnight on Friday, 17 August.

I had met Capt. Roger in Melbourne some years ago when he came as part of an RN team speaking about modern submarine life. We had kept in touch and I found him to be a most interesting fellow not only as regards his service with the RN, but also for his knowledge of what was happening in the world of electronics in general. On behalf of VK amateurs I shall send a note of sympathy and thanks to his family.

Finally thanks for taking part in this year's RD and please do not forget to send in your log. Your entry is important for your State.

73 and good contesting,

Ian Godsill VK3VP,
Federal Contests Co-ordinator

Remembrance Day 2001

Address by Captain Roger Alston D.S.O., R.N. (Ret.)

Good evening and thank you for allowing me to speak to you on this special occasion.

For 27 years I served in Her Majesty's Navy. I must say that I enjoyed the career, but like so many people in various ways of life, there were good and bad times.

Covering both of these extremes was a period of service in Submarines. Let me assure you that they are fascinating vessels and I look back on those years with much happiness and satisfaction, in amongst the thoughts of what it may be like to be sitting on the bottom and slowly freezing to death.

You will appreciate that the Master of a vessel is expected to have a good overall knowledge of his whole ship. He must understand what each section does and how those sections all contribute to the efficiency of the whole. However, he is not expected to be an expert technician in every department. That's why members of a crew are selected to complement a working ship, especially one that theoretically could be involved in situations of conflict.

Whilst today we don't really expect to be at war with anyone else, nevertheless nations do still make all sorts of threats, so we must be prepared.

Sometimes I can recall marvelling how a submarine running hundreds of feet below the surface of an ocean could apparently with ease communicate with its home port and authorities. I knew that we had VHF, HF and VLF as well as the use of satellites miles above Earth; and whilst I had the responsibility of managing any special codes designated to be used, I did not know the technicalities of how messages actually came and went. I was slightly in awe of "the radio men".

As a boy in the UK I learnt that it was easy enough to listen to foreign

broadcasts. I spent many hours doing this on simple superhet. Receivers fitted with nice glowing vacuum tubes and later with little black dots which I was told were called Transistors. Little did I realize then how such things would reduce the size of communications equipment and make it possible for such things as satellites and hand-held transceivers, pocket-sized radios, mobile telephones and meters to tell you where you are on the Earth's surface.

Our signallers of any service have at their command a vast array of equipment, but one thinks back to the World Wars and how chaps went out into battle areas with what today would be called "old fashioned gear" to report to their commanders in an effort to do their best for their comrades.

One can only admire the ingenuity

You in Australia are about to enjoy your annual Remembrance Day Amateur Radio Contest. No doubt many of you...will be young chaps for whom wars were the things of your fathers, grandfathers and uncles...but be it a special event like this, or ANZAC Day in April, or Armistice Day in November, let us honour the memory of those who died in the past to make this time available now.

and tenacity of those men, their determination to use their knowledge and equipment under sometimes very trying conditions. Not for them the ability to patch into satellites and the Net to pass messages by packet and e-mail.

Many of those chaps were or went on to become Amateur Radio operators and to use their knowledge and skills to further communications science. Perhaps now much of what they achieved has been overtaken by modern technology, but one still feels that the spirit of these men lives on and that there are ways that present Amateur Radio operators will continue to advance the techniques of communicating. Laser and pulsed-light modulation are some things that come to mind.

Today there is talk that the soldier of

the future will be wired to transmit and receive pictures and sound from wherever he is. Quite what that would do to waging war with an enemy is considerable scope for imagination. Also is the idea that now any warfare need not take the lives of thousands of people on a battlefield, but need only knock out some satellites to disable a whole country's communications!

Let us pray to God that there will be no more wars; but at the same time let us not forget those who gave up their lives for the freedom of families and friends at home.

You in Australia are about to enjoy your annual Remembrance Day Amateur Radio Contest. No doubt many of you taking part will be young chaps for whom wars were the things of your fathers, grandfathers and uncles. All

well and good; but be it a special event like this, or ANZAC Day in April, or Armistice Day in November, let us honour the memory of those who died in the past to make this time available now.

Lest we forget—and good luck in your Contest.

Biographical Note:

Roger Alston was born into a naval family. As a lad he was interested in sailing and radio in general.

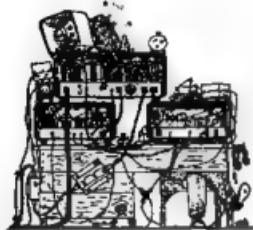
He majored in languages, history and English Literature at Oxford, before joining the Royal Navy.

After several years at sea, much of his work centred around his language abilities, both at home and abroad.

About five years ago he suffered an accident which necessitated surgery. As a result of this he was left with reduced power of speech. However, he still retains his sharp mind, as well as his interest in things electronic and of the sea.

He lives quietly in Wiltshire and is active in local affairs

(see Remembrance Day Post Script previous page)



AR Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 6 – The Internet

Many Radio Amateurs have criticised the Internet for "continued demise" of our beloved hobby. However, research suggests that the Internet has renewed and accelerated interest in Amateur Radio (AR) by offering a fast means of worldwide communication for ideas and data interchange via the Internet.

New technologies, and the widespread distribution of free AR software via the Internet, has opened up new data communications systems like PSK31, MFK18, WOLF, Spread Spectrum and many other exciting modes including Internet FM repeater linking (IRLP), I-Phone and more. Never in the history of AR have we all had access to such a diversity of communications systems from which to experiment. The value of the AR licence has been enhanced many fold, and a far cry from yesteryear when just AM and CW were the predominant modes on the HF and VHF bands.

Today, the average RA has great difficulty trying to keep up with, let alone attempt to understand some of the fundamentals of our hobby, and the new benefits available to them. One way to keep abreast of these new technologies is to have a connection to the Internet with an unparalleled wealth of AR resources.

One example of using the Internet for communications is this series of articles "Ham Shack Computers". The writer "talks" to the magazine editor and the typesetters via the Internet. Drafts of each edition, including the pictures and diagrams, are also sent via the Internet in a matter of a few seconds. The publishers do not have to re-type the words, they can see the finished product on their computer screens and directly insert the article into the pages of the next edition. (This magazine is produced this way, but with a little editing)

All this reduces the financial cost of magazine production and benefits all members of the Institute.

Previous columns in this series have highlighted Internet sources for free software, and some readers "chat" with

the writer via the Internet gaining further information and advice on their own Ham Shack Computer problems. Again the cost is minimal but the benefits are highly valued. No other modern means of fast communication can offer this type of affordable error-free productivity.

What do I need to get on the Internet?

Any reasonably modern computer will do provided it will run Microsoft Windows 95/98/NT/2000 or ME. An Intel Pentium 100 or upward multimedia computer will do fine. This means that it will have the capacity to add extra internal cards, a CD-ROM drive, and spare communications ports and a sound card. This can be purchased from "computer recyclers" for far less than \$500 and the dealer will throw in an external communications modem as well.

The Modem

The cheapest way to make your Internet connection is via a modem that connects between the public telephone line and a spare communications port on your computer. It works just like a telephone except you make the call, via the modem, to an Internet Service Provider (ISP) in your local area.

The modem converts the digital data from your computer into analog tones that can be sent down the phone line. To receive information from the ISP, your modem converts the received analog tones back to digital data signals so your computer can process the information.

External modems are recommended because they can be easily moved, switched on/off, and you will not have to reboot your whole computer if the

modem or ISP connection "hangs".

The maximum speed of the analog public telephone system for data exchange is 56kb/sec. However, Internet connection speeds can vary dramatically depending on the connection path, and at times, may stop completely for a few seconds then continue without notice! Most new modems are capable of 56kb/sec and can be bought for around \$150 or less.

If you need a modem, check with your local dealer or use some of the more cost-effective options suggested in previous articles in this series.

Internet Software

Microsoft Windows software CD's come with Microsoft Explorer, which is a "browser" program, used to display the special codes in Internet "pages". These pages are displayed in magnificent colour, some with animated graphics and buttons and underlined text (called hyperlinks) that can display other pages or distant Internet sites with just a single "click" of the mouse. Netscape Navigator is another popular browser program that does much the same thing.

For electronic mail (or email), easy to use programs like Eudora and Pegasus are very popular, and like the above browsers, they are freely available on the Internet.

For file transfers between "sites", WS-FTP is excellent, and again free via the Internet. There are many other programs freely available, but it's best to stick with the common ones above until your confidence in using the Internet has become second nature to you.

Internet Service Providers

You will need an account with an Internet Service provider (ISP). Shop

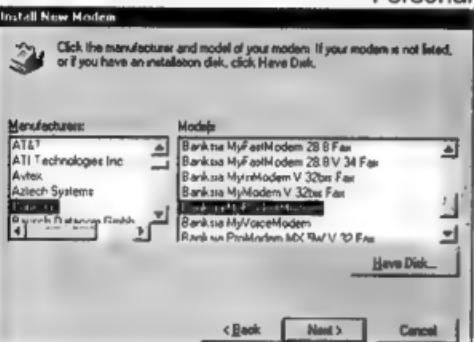
around your area for the best deal. Some accounts are paid by the hour, by monthly plans, or for the year depending upon what you can afford. These accounts offer you an email account with a user name and a password. EG. vk6pg@tpg.com.au

VK6PG is my own user name, the "@" means at, and "tpg" is my ISP. "com" means commercial, and lastly the "au" says it's located in Australia. Your ISP account also allows you to use a browser program like Netscape Navigator to connect to millions of sites worldwide.

EG. <http://www.whitehouse.gov>

The "http" means Hypertext Transfer Protocol, the colon and slashes are a separator, "www" is the World Wide Web, "whitehouse" is the Whitehouse in the USA, and "gov" means it's a government site. Easy eh?

Setting up Microsoft Windows for the Internet



Firstly, install the modem from Start, Settings, Control Panel and Modems. Select the modem type from the list, or use Have Disk if your modem is not listed, then select Next. Select the Com Port used for your modem. Windows will acknowledge the modem, test it and announce that the modem has been successfully installed. Next select My Computer then Dial Networking icon in My Computer. Open New Connection then "right click" the new icon and carefully fill in the details given to you by your ISP. They include the connection name, dialup number and a list of other instructions needed for successful Internet connections. Once done, copy the ISP icon to your desktop, "click" the icon and test the new connection is successful by entering

your user name and secret password to be verified by your ISP. Once connected, open your browser and try one of the many sites listed in this magazine.

With your email program, use the HELP options and your ISP instructions to correctly setup the software. Once done, new messages can be compiled and sent to your friends to "test" that all is well. Next time you connect to the Internet, "click" on New Mail to download any replies which you can answer whilst online and then select Send

For practice, look for the Internet address of the Wireless Institute of Australia in this magazine and do some "surfing around". Try the WIA site in your own State and so on. Within a very short time you'll become very proficient, confidence will build, and you will be thinking of "downloading" free software to enhance your own AR interests.

Personal Web Sites

Many RA's have personal Internet Web Sites. The WIA, AR clubs and societies, national organisations like the ARRL in the USA, the RSGB in Britain, AMSAT and thousands of others. Each has their own specialised point of interest. Try looking for your own callsign listing in a worldwide Internet online callbook like QSL.net, QRZ.com or Buckmaster.

The addresses are:

<http://www.qsl.net>
<http://www.buck.com>
<http://www.qrz.com>

After a short while you'll have saved

dozens of Internet World Wide Web (www) sites and email addresses of AR operators, friends and relations.

Summary

In the June 2001 edition of QST, the Journal of the American Radio Relay League, a survey suggested that there were now 97% of ARRL respondents connected to the Internet. Another major society concluded that the number of members connected to the Internet had increased by 300% in the last 12 months! It seems clear that the Internet is opening new and wonderful opportunities for the AR movement worldwide. Why don't you "get connected"?

Ham Tip No. 6

Ron, VK6RV suggests unlimited connect times from <http://freeline.com.au>. Also, free email can be obtained from the Microsoft HotMail and Messenger services. Whilst typing this article, Messenger allowed the writer to "chat" to Ron at the same time! Ron added that Messenger provides unlimited time for national and international voice "telephone calls" at no cost. A simple headset/boom microphone (from Big W stores) connected to your computer sound card with Messenger doing the work for you. You can now have a private QSO, without QRM and no antenna, with your colleagues overseas!

Ham Shack Computers, Part 7 HTML

Highlights the basics for building your own AR Web Site pages using Microsoft FrontPage Express. For a preview, check out the new Ham Shack Computers site at: <http://www2.tpg.com.au/users/vk6pg/>

73's de Alan, VK6PG



A H VHF/UHF

AN EXPANDING WORLD

David K. Minchin VK3KKK

Postal PO Box 789 Salisbury South Australia 5108

E mail: tecknolt@arcom.com.au Web page: <http://members.ozemail.com.au/~tecknolt>
Fax +61 8 8292 4501 NEW FAX NUMBER Phone 0403 368 066 AH ONLY

All times are in UTC.

Doug VK3UM Fires up the BIG dish!

Doug VK3UM reports ... Well the 10m dish is up and running fully on 70cms. It's sure been a while as my last QSO off the moon was 7th January 1995 with GORUZ from the old QTH. My first echo's were received on 23rd July with the driver and 55 watts at the feed. The returned signals were as expected so I was pleased to know ohm's Law had not changed! My first contact was with Peter SM2CEW on 25 July 54n/56n with the Amp then on line. Given the Sun/Moon coincidence I had to wait until the first activity weekend of 11/12th August to try it out in earnest.

Arrh its good to be back on .. crawling out of bed at 0130 .. being caught up in the W dog pile .. having more signals to work than you can cope ... the smell of the ozone ... the crash of the circuit breakers .. and the presence of Murphy .. neighbours (you have not heard from for weeks!) ringing up wanting help that their bull has got out (now that did not happen at the old QTH!) ... etc etc. Not to mention the XYL quipping 't's nice to see you this weekend dear'... even the dog, who normally goes ballistic at the slightest noise of wombats or possums took no notice of me getting back to bed at 0415!! Arrh nothing has changed!!

The following are all random and the TxH or V and Rx H or V refer to the polarity I was using at the time

26/7 1300 SM2CEW	54n/56n	TxH RxV
11/8 2250 DL7APV	44n/44n	TxH RxV
11/8 1455 K1FO	55n/53n	TxH RxH
11/8 1535 VK4AFL	43n/43n	TxH RxV
11/8 2213 JA5OVU	54n/55n	TxV RxV
11/8 2308 JA4BLC	44n/45n	TxV RxV
11/8 2354 G4ERG	44n/55n	TxV RxH
12/8 0002 G4YTL	44n/44n	TxV RxH
12/8 0035 JA6AHB	44n/55n	TxH RxV
12/8 1540 VK4AFL	44n/52n	TxV RxV
12/8 1616 KL7M	54n/55n	TxH RxH
12/8 1735 W7BBM	54n/55n	TxH RxV

Libration Fading was very bad at times and conditions generally I would rate only as fair. A couple of comments re the polarity, as being able to switch is a bit of a novelty at present. Faraday seemed to be about 60° (I guess) all weekend. I used the high tech method of determining my transmit preference by calling alternatively on H and V and waiting for replies!! You will find it interesting to see the mix as listed above and without the ability to switch, many contacts would not have been possible. At no time was I unable to hear my echo's and for about an hour at one stage I found that V-V was the only combination. (H-H was zilch.) Most of the time H-V or V-H was the norm and H-H was a rarity.

Several new initials there and great to catch up with the Steve (K1FO) and Yoshi (JA4BLC) again whom we have had many dozens of QSO's in the past. It was a pleasure to operate with the dish on fully Autotrack and positioning to 0.5° absolute. It was one less thing to worry about I have been asked about accepting skeds. In a word generally no, but I will accept them under exceptional circumstances. This has always been my 'policy' as I prefer to work stations 3dB above my imagination! 23cms?.. well working towards it .. it will be a little while just yet! ... Doug VK3UM

Gridsquare Standings at 12 July 2001

The following is Guy VK2KU's gridsquare standings for July 2001. We try and publish the listing once per year (usually in winter!) but if you want to keep closer track of the standings, Guy provides these at regular intervals on the VK-VHF email group.

144MHz Terrestrial	
VK2ZAB	Gordon
VK3BRZ	Chas
VK2KU	Guy
VK2DVZ	Ross
VK3TMP	Max
VK3EK	Rob
VK3CY	Des
VK2FLR	Mike
VK3XLD	David
VK3ZLS	Les
VK3BDL	Mike
VK2MP	Rej
VK3BJM	Barry
VK2DXE	Alan
VK3WRE	Ralph
VK3CAT	Tony
VK3KAI	Peter
VK4KZR	Rod
VK6HK	Don
VK2EI	Neil
VK4TZL	Glenn
VK7MO	Rex
VK3KME	Chris
VK2TG	Bob
VK4DFE	Chris
VK8KZ	Wally
VK3TLW	Mark
VK2TK	John
VK3AL	Alan
VK6KZ/p	Wally
VK3DMW	Ken
VK2DXE/p	Alan
VK3YB	Phil
VK2TWO	Andrew
VK2CZ	David

432MHz VK2ZAB	
VK3BRZ	Chas
VK3XLD	David
VK3EK	Rob
VK2KU	Guy
VK3BJM	Barry
VK3ZLS	Les
VK2DVZ	Ross
VK3TMP	Max
VK3BDL	Mike

VK3CY	Des	23	5.7GHz	VK3WRE	Ralph	6	correct size, should be used to exit DC from any enclosure. These can be solder in type or threaded.
VK3KAI	Peter	23		VK3KAI	Peter	4	
VK3WRE	Ralph	21		VK6KZ	Wally	4	
VK2MP	Rej	18		VK3BJM	Barry	2	
VK3CAT	Tony	14		VK6BHT	Neil	2	
VK4KZR	Rod	14		VK3XLD	David	1	
VK7MO	Rex	14					
VK3TLW	Mark	12	10GHz	VK6BHT	Neil	9	
VK6KZ	Wally	12		VK6KZ	Wally	5	
VK2TK	John	11		VK3EK	Rob	4	
VK3AL	Alan	10		VK2EI	Neil	2	
VK3ANP	David	10		VK3BJM	Berry	2	
VK6KZ/p	Wally	8		VK3TLW	Mark	1	
VK2TG	Bob	7		VK3XLD	David	1	
VK3KME	Chris	7					
VK3YB	Phil	4	24GHz	VK6BHT	Neil	3	
VK2CZ	David	3		VK2EI	Neil	2	
VK2TWO	Andrew	3		VK6KZ	Wally	2	
VK4DFE	Chris	3					
VK2DXE/p	Alan	2					
VK3DMW	Ken	1					

Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@hermes.net.au, or by mail (QTHR 2001). Next update of this table will be in early November 2001. Stations who do not confirm their status for more than 12 months may be dropped from the table.

Microwave Primer Part Sixteen: Packaging the Portable Microwave Station

Last month we looked at the DC powering of a Portable station. This month we will look at considerations for packaging the various modules and the combined station.

Shielding and mechanical stability are the two main considerations for any assembly. Shielding is almost an art form, with the proper decoupling of various parts of a microwave transverter the most critical factor for stable operation. Yet how many times have you heard the story that "it worked fine until I put the lid on!"? Short cuts usually mean disaster.

Our circuit invariably is built on a piece of Teflon or Glass Fibre PCB. RF components are usually mounted on one side with DC components mounted on the same or opposite (better) side. Each DC line is usually decoupled at the signal frequency as well as lower frequencies where devices can have 10 times more gain and suffer from low frequency oscillations. Successful decoupling usually needs several stages of L & C feed through capacitors, of the

1296MHz	VK2ZAB	Gordon	25
	VK2KU	Guy	19
	VK3EK	Rob	19
	VK3KWA	John	19
	VK3XLD	David	18
	VK3BRZ	Chas	16
	VK2DVZ	Ross	13
	VK3BDL	Mike	12
	VK3KAI	Peter	11
	VK3TMP	Max	11
	VK3WRE	Ralph	11
	VK3BJM	Barry	10
	VK3ZLS	Les	9
	VK4KZR	Rod	9
	VK7MO	Rex	9
	VK2TK	John	8
	VK3TLW	Mark	8
	VK3AL	Alan	7
	VK6KZ/p	Wally	5
	VK6KZ	Wally	4
	VK2MP	Rej	3
	VK2DXE/p	Alan	2
	VK3CY	Des	2
	VK2CZ	David	1
	VK3DMW	Ken	1
	VK3YB	Phil	1

2.4GHz	VK3WRE	Ralph	8
	VK3KAI	Peter	7
	VK3EK	Rob	4
	VK6KZ	Wally	4
	VK4KZR	Rod	2
	VK3BJM	Barry	1
	VK3TLW	Mark	1

3.4GHz	VK6KZ	Wally	4
	VK3EK	Rob	3
	VK3KAI	Peter	1
	VK3WRE	Ralph	1

The various RF stages use Stripline transmission lines and inductors. Each one of these RF carrying parts has a three dimensional radiation pattern with a field usually developing longitudinally. Proper PCB layout will ensure that these fields do not interact in such a way that unwanted coupling occurs. The radiation typically leaks to space where it causes a small amount of EMI but little effect on what goes out the output socket. Putting a lid on the whole assembly contains this radiation. If this radiation is significant and finds its way back to an earlier stage via a number of paths then you have a problem! Another problem may be that the whole enclosure may have a resonant frequency near the operating frequency setting up a perfect oscillator.

There are many factors in solving feedback problems. Before you even look at mechanical means, the circuit must be optimised to the point where device mismatch problems are minimised and things like filters are close to the target input/output impedances. Reflected power from mismatches makes up the bulk of radiated power. PCB groundplanes and device ground points must be made in the lowest inductance manner possible. Use brass rivets, plated through holes, foil Z wires or whatever. Grounding problems are typically the main cause of circuit instabilities, sometimes it is hard to visualize but often the poorly bonded surface of a groundplane can be a very efficient radiator!

The PCB must be contained in an RF tight enclosure that is efficiently connected to both groundplanes. Tinplate boxes made to the size of the PCB are popular. I have used 20 & 25mm wide brass strip, obtainable from model shops, for years for the walls of the PCB enclosure. The gauge is not that important; usually you don't need anything thicker than 0.3mm. This same strip can be used for internal shielding as well. The lid can also be fashioned from wider material or tinplate. The height of the lid should be such that the waveguide cut-off frequency is above the highest operating frequency, if possible. Otherwise, you may strike resonant enclosure problems.

Another popular way to shield PCB's

especially below 2 GHz, is to place a groundplane immediately above the PCB at say 10mm spacing. The groundplane usually needs to be tied to the PCB groundplane at multiple points (rows of brass bolt/standoffs.) This form of shielding doesn't need solid sides if you pay attention to correctly bonding the groundplane of the PCB around the edges. The aim here is to provide a waveguide section above the PCB with a cutoff frequency of at least double that of the highest frequency on the PCB. It works well where you have a number of PCB filters that need shielding from each other to get better stop band figures.

The ultimate method is a milled brass or Aluminium box. At 24 GHz, there is no choice; at 10 GHz, it is borderline. Commercially this is the most popular method. For the average amateur it is an elegant and expensive option. PCB Groundplanes still need to be correctly bonded to each other and the base of the box. Silver loaded epoxy is usually used to do this. If you have to remove a PCB, you do so with a chisel!

Having taken all due care, you may still need a little help to stop stray coupling within an enclosure. Various RF absorbing materials are available to dampen the response of an enclosure. All of this material has Carbon as its absorptive material. Commercially RF Rubber is available that is characterized for various frequencies. Nearly all RF power circuitry above 2 GHz will use bits of this foam to keep things stable should the RF load be less than optimum. My best source is from ex commercial equipment and the odd bit rescued from ex military equipment (where rubber absorbing material is used to reduce radar reflections). If your local junk joint doesn't have surplus bits from a F-117 Stealth fighter you may also consider using truck tyre rubber as an alternative. Some of this rubber has a very high carbon density, go looking along a highway for bits. The absorbing rubber material is usually stuck to the lid or various sides of an enclosure, subject to a bit of experimentation.

Contrary to popular belief, Carbon "plastic" foam commonly used for IC packaging is almost totally useless at lower frequencies; the highest density rubber IC foam is a "maybe". The only way to test the various types is to shove a piece into a bit of waveguide and

measure its attenuation at the required frequency. Remember, RF absorbing materials is a band-aid solution, if the design is poor to start with nothing will save you!

For RF interconnection, select your favourite miniature connector. I used SMB's for many years but found that they suffer from similar problems to BNC's and become unreliable. SMC's (threaded version of SMB) is far better. Both are available for RG142 Teflon & RG174 miniature coax cable. For above 2-4 GHz I use SMA's. Source's of second hand SMA's and hardline are numerous. Bending 3.5mm hardline is a bit of an art; at frequencies above 5 GHz, you must pay attention to the correct bending methods of hardline.

The box you put everything in needs special mention. It must be mechanically rigid, so modules are attached to a solid structure. Shoe boxes, full of modules and clip leads, tend not to work the same twice! It must be both serviceable and provide protection of the internal modules. It doesn't have to be weatherproof; I keep garbage bags and cable ties on hand for when it gets wet. As everything usually has to pack down into a car, using similar sized square boxes makes it easy. For years, I have used Horwood (Melbourne) style boxes for all my transverters. These are no longer available. Surplus boxes, e.g. those used for AMPS mobile phone base stations make excellent enclosures. Russell VK3ZQB has built a number of his transverters into these die cast Aluminium cases.

I pack all the transverters into carry cases. Originally, I used suitcase styles, similar to early video camera boxes. Now I use ex commercial aluminum cases, with foam packing, to pack everything into. This means you can literally "throw" everything into the back of the car, bounce around on that mountain track and still have it working at the end of it all. It also makes it easy to put on a plane if you are traveling.

Next month the portable dish, tripod and engineering frequency considerations.

In closing

Few have played with 10 GHz rainscatter in VK but O/S it is different ... "KD4RLD and I just completed (18/08/2001) a S9 10 GHz rain scatter contact

via a storm over Newberry, South Carolina. The distance to the storm was approximately 184 km and the power at both ends was just under 100 mW. I know this is old hat to most experienced microwavers but it was a first for us. If there happens to be any heavy rain cells within a few hundred km's of my QTH (EM95tg) I will be beaming into the rain calling CQ at random on 10,368.100 +/- a few kc." .. Dexter W4DEX

Those wishing to look at the various weather radar sites around VK, for tropo propagation can find them at <http://mirror.bom.gov.au/weather/radar/#map2>

I'll leave you with this thought ... "We make a living by what we get, but we make a life by what we give"

73's David VK5KK AR

PLAN AHEAD

JOTA

Jamboree On The Air

A World activity enabling Scouts to experience the International dimension and the bigger picture of Scouting while making friends and having new experiences. It can be a rewarding and fun time for the Amateur and is a chance to showcase our hobby to young people.

from

**0001 Saturday
20 October**

to

**2359 Sunday
21 October 2001**

A
R

How's DX

Ross Christie, VK3WAC
 19 Browns Road, Montrose 3765, Vic.
 Email VK3wac@aol.com

Cycle 23 a damp squib

How have the bands been? For me cycle 23 has not lived up to expectations. It has now been confirmed cycle 23 peaked this February so it is now 5 years of decline so we live in hope for some good openings next year.

However things are not always bad. The world distance record for pedestrian mobile is now 22593 km LP or 17549km SP for both SSB and CW as reported in RADCOM recently. This was between Max, ZL1BK of Auckland, New Zealand who was walking in the park near his QTH while Demetre, SV1UY, of Athens, Greece was hiking in Mount Ymittos, and both were operating small portable style QRP rigs. Contact between the two was first established on the 28th of February at approximately 06:25 UTC on CW, later at 06:45 they changed over to SSB. Greece and New Zealand are almost antipodean so the chordal hop mode would be a great boon to these QRP stations.

The QSO fully qualified for the HF-pack '5 Watt Pedestrian Mobile Category 2' award. Both stations were using hand-held 5 metre long centre loaded whips.

For those of you with an interest in this field a full listing of the 'HF-pack' hall of fame can be found at the following web site, but please be aware, to access the listing you must join and become a member:

<http://groups.yahoo.com/group/hfpack/>

database

Reading this has had me checking my own equipment, it's all OK so get yours out and we can enjoy the Spring and Summer DX activity.

The DX

3V, TUNISIA. All Tunisian stations have been authorised to use the callsign 3V8MED until the 15th of September. This callsign is celebrating the 'Mediterranean Games 2001' being held in the city of Tunis. A web page on the games can be found at <http://www.tunis2001.tn/en/indexen.html> [TNX OPDX]

4Z8, ISRAEL (Attention Prefix Hunters!) Marc, WC1X, is currently

operating in Israel using the call 4Z8BB. This is a rare prefix and Marc will be on air with it until June 2002. This callsign should be of great interest to prefix hunters as there is only one other '4Z8' call. Marc is mainly active on 20 and 15 metres around 0330-0430Z on 14082 +/- QRM, 7 days a week into the USA, but give him a call if you hear him. He can also be found on 20 metres using RTTY. QSL manager is WC1X. [TNX W1CX and OPDX]

5R6, MADAGASCAR. Phil, G3SWH, is visiting Madagascar between the 6th and 20th of September. He has submitted a licence application to the authorities requesting the call 5R8WH, however he has not yet received confirmation on the call. Phil will be travelling extensively and doesn't expect to get on air until he arrives on Ile Ste Marie (AF-090) on the 15th of September. His preferred mode is CW so shake out the cobwebs. QSL via G3SWH. [TNX G3SWH and The Daily DX]

5R. MADAGASCAR. Jack, F6BUM says he will be active from here between the 2nd and 27th of September. He is planning to be active from AF-090 from the 3rd until the 7th of Sept and from AF-057 from the 23rd until the 26th. Jack will be taking along an IC-706 and an R7 vertical, his preferred mode of operation is CW. [TNX F6BUM and 425 DX News]

8Q, MALDIVES Pierre, HB9QQ will be back in this tropical paradise for a month beginning the last week of October. He will be signing 8Q7QQ and intends to concentrate mostly on 6metres, however if 6 is not performing he will be active on 10, 12, 17 or 30 metres CW. [TNX HB9QQ and OPDX]

CP, BOLIVIA. Steve, G4ASL, will be active from Cochabamba, Bolivia signing CP5/G4ASL until October. He is on 80 - 10 metres using RTTY, PSK31 and CW with some SSTV and HELLFAX. QSL to

G4ASL via the Bureau [TNX G4ASL and 425 DX News]

D4, CAPE VERDE. Xara, CT1EKF has just been authorised to use the call D44TD. He will be visiting the Cape Verde Islands often, his next planned trip is for about six weeks beginning on the 25th of August. He will be taking an IC756 and a 4-element beam for 6 metres. So, if you haven't worked D44 yet here comes your chance. [TNX EH7KW, UKSMG and OZ50MHz Bulletin]

F00FLA. Dave Flack, AH6HY, is planning a trip to Rurutu Island (OC-050) in the Austral Islands. He expects to be there from the 9th until the 14th of September. The main reason for the trip is diving but he plans to spend as much free time as possible on air. He will most likely be found on 15 and 20 metres SSB QSL via AH6HY. [TNX AH6HY and The Daily DX]

FR/T, TROMELIN. Jacques, FR5ZU, is heading back there again from the 5th of Sept until the 5th of Oct. He expects to be active on all bands using SSB. QSL via direct or his current QSL Manager JA8FCG. [TNX OPDX and The Daily DX]

LX, LUXEMBOURG. A group of Dutch operators will be signing LX9SW from here from the 15th until the 22nd of September. They will mostly be using CW and SSB on 160 - 10 metres but will also try to get in some RTTY and PSK31 QSL to PA1KW or via the bureau [TNX PA1KW and The Daily DX]

PJ2, NETHERLANDS ANTILLES. Tom, AE9B, and Marty, NW0L, plan to be active from the Netherlands Antilles during the WAE Contest run over the weekend the 8th and 9th of September. The pair will sign as PJ2/AE9B and PJ2/NW0L for the week prior to the contest [TNX The Daily DX]

PJ7, ST MAARTEN ISLAND. Jim, W6JHB is planning to operate as PJ7/

W6JHB from St. Maarten (NA-105) in the Netherlands Antilles from the 8th until the 14th of September. He will be active on 40, 30, 20, 15, and 10 metres CW QRP. He will also try and get some time in on 17 metres antennas permitting QSL via W6JHB [TNX W6JHB and 425 DX News]

TG, GUATAMALA A team of Spanish operators comprising EA1QF, EA3CUU, EA4BT, EA4KA, EA7AAW, EA7JB, EB1ADG and EB4EE are travelling to Guatemala to install a digital radio emergency network in Guatemala. They have performed similar work in recent years in neighbouring El Salvador and Honduras. The group will be there from the 17th until the 26th of September. Activity will take place on 8 - 180 metres using SSB, CW and RTTY. Special emphasis will be placed on CW and the WARC bands. Approval has been sought to use the call TG0R but the group is still awaiting confirmation. All the activities will take place jointly with the CRAG (Club de Radicacionados de Guatemala). QSL via EA4URE. [TNX EA5RM, Radioaficionados Magazine DX and 425 DX News]

TL, CENTRAL AFRICA. Charles, TL8CK, has been worked often lately on 15 metres SSB. Have a listen for him between 11:30 and 14:30 UTC. QSL via F6EWM. [TNX F6EWM and OPDX]

VK0, ANTARCTICA. Mark, VK4KMT, is currently on air during his spare time as VK0KMT from the Australian Antarctic Base "Davis" (68.55°S-77.9°E, IOTA AN-016, CQ Zone 39, ITU 69). He can often be heard on air between 04:00 and 10:00 UTC around 18.120 +/- and 14.180 MHz. QSL via VK4KMT, Mark Tell, 3 Wheik Close, Trinity Beach, QLD 4879, Australia. [TNX VK4KMT and 425 DX News]

Special Events

The Latvian Amateur Radio League is sponsoring the "Riga 800" Award to celebrate the 800th anniversary of the Latvian capital city. The award is for contacting, or listening and logging, the special calls YL800xx for the period 1st of July and 30th of September. Further information can be obtained from Grigori, YL2NS at yl2ns@e-apollo.lv [TNX YL2NS and 425 DX News]

Round up

Gerard, PA3AXU, is planning an extensive trip to the Pacific region. He will be operating as T30XU from Tarawa,

West Kiribati (OC-017) from the 4th until the 10th of Sept. He will then move on to Nauru (OC-031) and operate as C21XU from the 11th to the 19th of September. The last stop on his itinerary is Fiji (OC-016) where he will operate as 3D2XU from the 20th until the 28th of September. Gerard says he plans to be active on all bands and modes. Details are available at <http://www.qsl.net/pa3axu/2001/>. [TNX VA3RJ and 425 DX News]

Bert, PA3GIO, is also planning a trip to the Pacific. He plans to operate on all bands from 10 - 80 metres using SSB. He will be using a number of calls during his trip, VK9CQ from Cocos/Keling (OC-003) from the 8th until the 14th of Sept, VK9XV from Christmas Island (OC-002) from the 15th until the 22nd of Sept and as VK9LO from Lord Howe Island (OC-004) from the 9th until the 15th of Sept. Bert says the actual dates will ultimately depend on flight schedules. QSL via PA3GIO either direct to Bert vd Berg, Parklaan 38, NL-3931 KK Woudenberg, The Netherlands, or preferably via bureau. [TNX PA3GIO and 425 DX News]

The Turkmen Club Station EZ3A is located in Annau near Ashgabat. Four special event callsigns have been issued for the year 2001. These calls are for the following special anniversaries; EZ21A for the New 21st Century, EZ56V for the 56th anniversary of Victory at the end of WW II, EZ75R celebrating 75 years of Amateur Radio in Turkmenistan and EZ10A for the 10th anniversary of the Independence of Turkmenistan. QSL direct to P.O. Box 73, Ashgabat 744020, Turkmenistan.

Andy, G0KZG/MM, has let us know that he will be operating from aboard ship from the 21st of Aug until the 11th of Nov while plying the Indian Ocean. The ships route will take him from Durban to the Seychelles arriving on the 30th of Aug. Departing from here on the same day and sailing north of the islands heading for Oman arriving on the 29th of Sept. After this his travels will take him to either the Arabian Gulf or the north Indian Ocean until 11th November 2001. [TNX G0KZG/MM, Six Italia and OZ50MHz Bulletin]

Jose Jacob, VU2JOS, reports that Indian amateurs have had their permission to use the following frequencies extended until 31 January 2002: 10100-10150 kHz, 3790-3800 kHz,

50350 and 50550 kHz. [TNX VU2JOS and 425 DX News]

DX NET Chris, VK2UW, extends an invitation to all DX Stations to join the Pacific DX Net on 14240 kHz from 11:00 until 13:00 UTC. The net will be a great opportunity to increase their country count and also help others make contact with DX. [TNX VK2UW and OPDX]

The Republic of Ireland, EI, has just granted permission for a new 10-metre beacon. It will operate on 28209 kHz running A1A CW, 25 watts. The beacon will be operating into a dipole for the first few weeks until four phased quarter-wave verticals, beaming north-east, north-west, south-east and south-west, can be erected. The callsign will be EIOTEN and reception reports are requested by QSL via the bureau to EI4HQ. [TNX RSGB]

A new book has just been published for DXers, "The Amateur Radio DX Reference Guide - DX101X by AC6V". The book includes information on DX equipment, propagation, operating aids, working DX, QSLing, DX Secrets and has 14 Appendices. This 228-page book took 12 months to compile and write and features invaluable DXing advice of several well respected Dxers and technical experts. An extensive outline and summaries are available at <http://ac6v.com/> [TNX AC6V and OPDX]

Sources

As usual our thanks go to the following people and organisations; W1CX, G3SWH, F6BUM, HB9QQ, G4ASL, EH7KW, AH6HY, PA1KW, EA5RM, F6EWM, VK4KMT, YL2NS, VA3RJ, PA3GIO, G0KZG/MM, SIX ITALIA, VU2JOS, AC6V, VK2UW, Radioaficionados Magazine DX, UKSMG, OZ50MHz Bulletin, 425 DX News, OPDX and The Daily DX

Silent Keys

The WIA regrets to announce the recent passing of:-

R W (Reg) Cooke	VK2DDJ
T P (Paul) Hinsby	VK2GTP
D E (Douglas) Hale	VK3DE
C B Roberts	VK3ZMR
M G White	VK5ZL
M H B (Marcus) Hurburgh	VK7MH

HF Predictions

by Evan Jarman VK3AN

34 Alandale Court Blackburn Vic 3131

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.

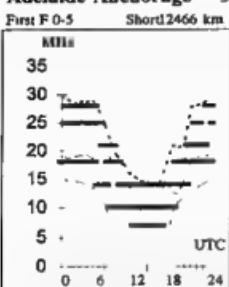
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D-region)

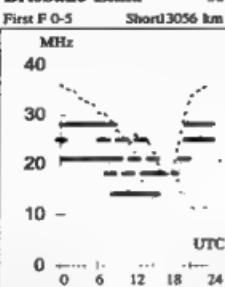
Shown hourly are the highest frequency amateur bands & ranges between these key frequencies, when usable. The path propagation mode and Australian terminal bearing are also given for each circuit.

These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

Adelaide-Anchorage

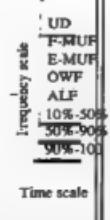


Brisbane-Lima

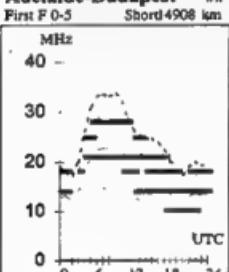


September 2001

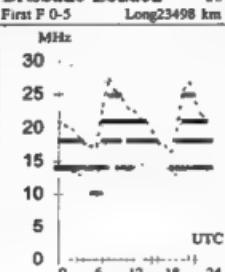
T index 106



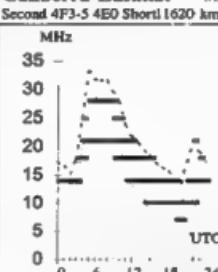
Adelaide-Budapest



Brisbane-London



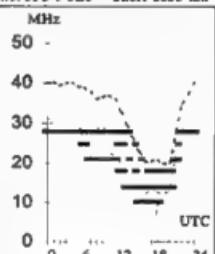
Canberra-Lusakar



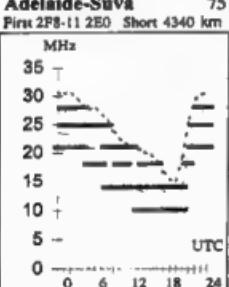
A
R

Darwin-Honolulu 65

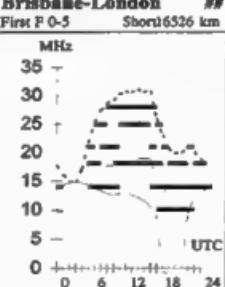
First 3F3-5 4EO Short 8635 km



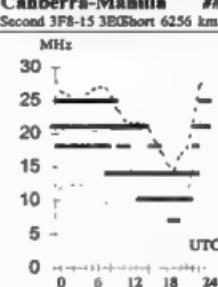
Adelaide-Suva 75



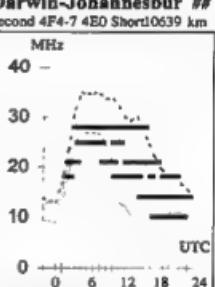
Brisbane-London



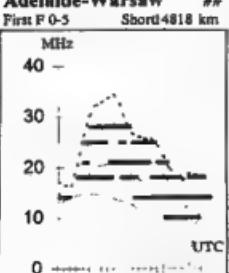
Canberra-Manila



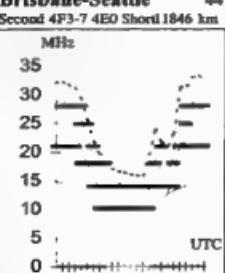
Darwin-Johannesburg



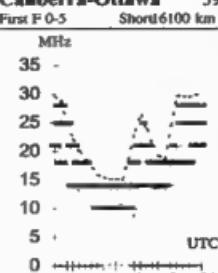
Adelaide-Warsaw



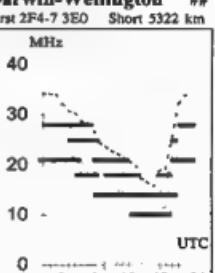
Brisbane-Seattle 44



Canberra-Ottawa 59



Darwin-Wellington



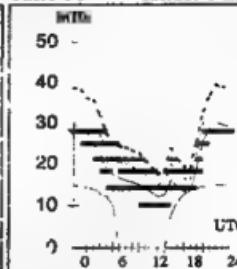
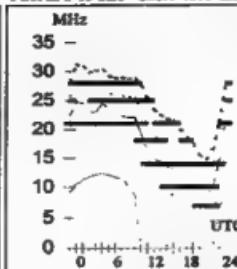
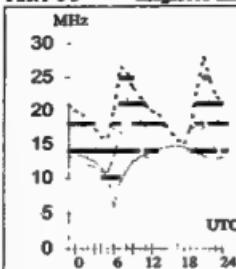
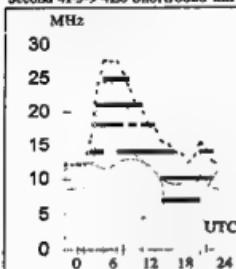
Hobart-Capetown ## Melbourne-London ## Perth-Kuala Lumpur ## Sydney-Los Angeles 61

Second 4F5-9 4E0 Short 10026 km

First F 0-5 Long 23118 km

First 2F8-15 2E0 Short 4179 km

First F 0-5 Short 12075 km



Hobart-New York 50

First F 0-5 Short 16609 km

Melbourne-London ##

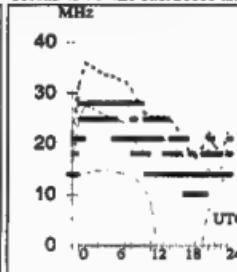
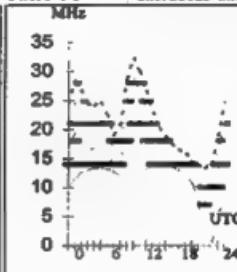
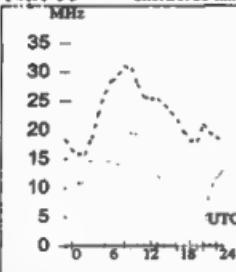
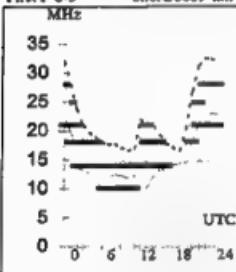
First F 0-5 Short 6906 km

Perth-Rio de Janeiro ##

First F 0-5 Short 3523 km

Sydney-Rawalpindi ##

Second 4F4-9 4E0 Short 1066 km



Hobart-Port Moresby ##

Second 2F11-15 2E0 Short 3710 km

Melbourne-Pretoria ##

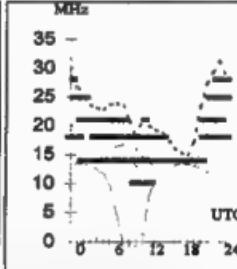
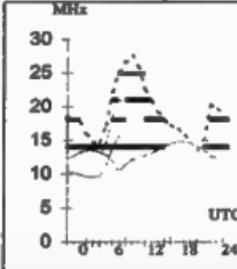
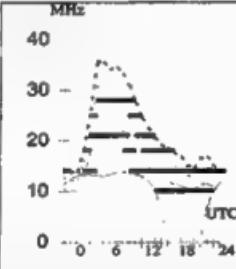
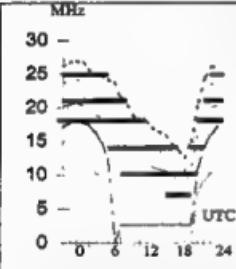
Second 4F5-8 4E0 Short 0353 km

Perth-Stockholm ##

First F 0-5 Long 26577 km

Sydney-Santiago ##

Second 4F3-5 4E0 Short 1347 km



Hobart-Rome ##

First F 0-5 Short 16350 km

Melbourne-Tokyo ##

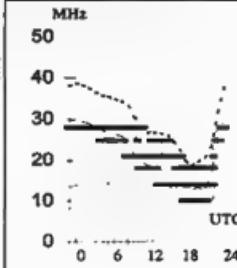
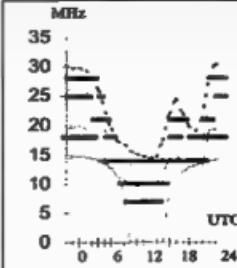
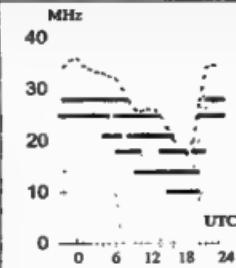
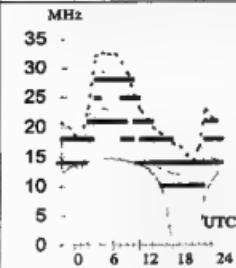
First 3F4-9 3E0 Short 8191 km

Perth-Vancouver 50

First F 0-5 Short 14823 km

Sydney-Singapore ##

Second 3F8-14 3E0 Short 6396 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
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- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
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- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

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 Postal: Newsletters Unlimited, PO Box 431, Monbulk Vic 3793

Please send your Hamad by ONE method only (email preferred)

FOR SALE NSW

- YAESU FT-901D CXVR manual, mic, lead. Good condition \$350. YAESU FV-901 ext memory unit. Good condition, manual \$200. YAESU FT 101-ZD XCVR, manual, mic, AC lead. Good condition \$300. M D Drady VK2DBI. Phone 02 8387 5095 QTHR
- HEATHKIT amateur radio general licence course. Two huge manuals which include two excellent CW tapes, ideal for novice licence study. Very good condition. \$60 posted and insured. Charlie VK2NAJ QTHR 02 6456 1646
- ALINCO DX-70 \$900 YAESU FT-102 \$500. YAESU 8800 \$350 Tiny 2 \$100. Pakratt PK232 \$150. All have manuals, mics etc. Good working order David VK2BDT QTHR Phone 02 4821 5036
- KENWOOD station monitor model SM220 with Pan adaptor BS-8 and operating manual \$250. Maurice VK2OW QTHR. Phone 02 9838 1834
- KENWOOD TM-733A dual band 2m-70cm, never used \$350 Phone Ted 02 4625 4959
- YAESU FT-890 HF transceiver all HF bands and all modes AM/SSB/CW/FM, built in keyer, the last of YAESU's best, used to receive only VGC \$900 Chris VK2YMW QTHR. Phone AH 02 9487 2784
- Complete PACKET setup, comprising Computer, monitor, keyboard, printer with plenty of paper, Tiny 2 Mk 2 TNC and PaKet 6 software with manuals. \$275 Ian Peterson VK2MW Phone 02 9144 4985 or ianpet@bigpond.com
- TANDY HTX-100 10m SSB/CW transceiver in very good condition, with manual, mobile mounting bracket & screws, mic bracket and power cable. Originally purchased in US, Serial No 83008803. Good value at \$200.00. Contact Doug VK2KIQ QTHR. Phone 02 9550 6264 (BH) or doug@karetechnics.com

WANTED NSW

- IC type MF4-50 switched capacitor filter. Require 2 tone spare! for use in 'Experimental HF Receiver' by the late Harold Hepburn VK3AFQ as described in 'Radio and Communications' Dec. 98 to April 99. Pat Brennan VK2ABE, PO Box 158, Tamworth 2340
- YAESU VX-IR 2m/70cm micro handheld latest model (with extras optional) \$290. VK3GMM Phone 03 5995 2671
- YAESU FT-707 transceiver with ICOM PS-15 power supply, KENWOOD AT-200 tuner, KENWOOD desk mike and YAESU SP-102 filtered extension speaker. \$700. Ex deceased estate VK3VBU Lindsay VK3IQ, Phone 03 5672 2663, email vkiq@telstra.easymail.com.au
- YAESU FP-757HD power supply with internal speaker, 20 amp extended duty cycle 30 Min on/30 Min off. Thermal switched cooling fan, good condition \$150 plus \$10 freight. Best VK3DVY. Phone 03 5221 6804 or virgo@websax.net
- KENWOOD TS-711A 2m all mode transceiver, VGC with operating manual, hand mike and service manual \$650. ICOM ICR-7100 VHF/UHF receiver, like new condition with original carton and operating manual etc. \$1400. Damien VK3RX, Phone 03 5427 3121
- KENWOOD TS-711A all mode 144MHz transceiver serial no. 7050329 complete with microphone and operating manual. Still in original box. As new condition. \$640.00 Fred VK3AFR QTHR, Phone 03 5345 3633

WANTED VIC

- FT-2FB manual or circuit diagram VK3ANJ QTHR Phone 03 5155 1380
- Wanted dead or alive. BATTERY PACK for YAESU FT209R. Any condition. Ron, VK3OM, QTHR. Phone 03 5944 3019

• FT102, FV102 and FL2100Z all must be in good working order. Contact Chris, VK3FY. Phone 0419 155 139 or vk3fy@hotmail.com

• COLLINS 75-3 series, RECEIVER in good to excellent condition. Willing to swap COLLINS 32S-3 TRANSMITTER in mint condition. Contact Chris VK3FY. Phone 0419 155 139 or vk3fy@hotmail.com

FOR SALE QLD

• TS-440S SN0010795 \$850 PS-50 Power supply \$N0010393 \$275 MC-60 Desk mic \$100 Speaker SP-430 \$75. Katsumi keyer EK150 \$110 MOSLEY TA33 beam junior \$125. Regulated power supply 13.8V 4A \$80. KRA400 Rotator, controller cable \$375. Pat Dryden, VK4PAT, 17 Wonga St, Scarness Qld 4655, Phone 07 4128 1752

• YAESU FT-101EE HF transceiver with 10MHz, AC or DC operation, virtually unmarked, owner's manual, hand microphone. Same owner since new, late model \$350. Ham III antenna rotator heavy duty \$475. John Abbott VK4SKY QTHR, email japsat5@bigpond.com or phone 0417 410 503, PO Box 1168, Coolangatta 4225 Qld

• Deceased Estate: YAESU FL-2000B linear \$600. YAESU FT-101E Transceiver, CW filter \$325. SWAN 350, spare finals & matching power supply \$100. PIERCE SIMPSON 27MHz CB \$10. SANSEI SE405 SWR & F/S meter \$20. SANYO CTP 3617 12in. Colour TV \$40. Power Transformer with case, heat sinks & 6x2N3055's suit 13V @ 30A \$50. HP logic probe 548A, pulse 648A, current tracer 547A \$50. PHILIPS FM 828 4ch. fitted \$20. Spare unit \$10. KINGSLY AR1 Rx. 8 coil boxes & spares valves \$20 KIKUSU, Sig Gen 18Hz - 200kHz \$20. PHILIPS GM4144 R & C Bridge \$20. E/A Digital freq counter 200MHz \$20. NIMROD T-100K gas soldering iron \$20. DECADE RESISTANCE boxes 1 X 100kohm, \$10 1k - 1Mohm \$10. RF IMPEDANCE BRIDGE \$10. 2 Tone Gen \$10. 2m Transmatch \$10. HITACHI TRS-1161 3 band Cassette recorder \$10. Contact George VK4XY QTHR Phone. 07 3285 5181

• DRAKE TR4CW transceiver with RV4C remote VFO, power supply, speaker, manual, microphone, all in excellent condition, \$500. Carsten VK4OA QTHR, Phone 07 3284 8443 or e-mail pederssen@powerup.com.au

FOR SALE SA

• SONY ICF-7800G portable all band, all mode receiver, min conc 150kHz to 30 MHz AM/FM/SSB only 18cm X 12cm X 3cm \$200, as new. accessories, Ray VK5AVR. Phone 08 8762 2034

• PHILIPS FM-93A converted to 2 metres, 99ch, s/n 200794, \$120. PHILIPS FM-1880c converted to 2 metres, 10ch, 25w, mobile bracket, s/n 32533, \$80. Rob VK5CS, Phone (mob) 0421 088 857

WANTED SA

• Mobile HF XCVR IC 706, TS-50, FT-757 etc. Also interested in small ATU (prefer matching unit where applicable) David VK5AXW Phone 08 8370 1066 (bus), 08 8370 9569 (AH)

FOR SALE WA

• EMTRON EAT300 tuner, OSKER BLOCK meter, paddle key. LP Filter, 20 amp power supply (large), 4 amp power supply, multi meter, 2m whip, MFJ-4010 keyer CHIRNSIDE vertical antenna 5 band VK6BEB Phone 08 9841 5040

WANTED WA

- Reduction drive gears, variable air capacitors, 2000 ohm headphones for home brew projects, VK6PKK, PO Box 512, Manjimup, WA 6258
- YAESU FRG-7, TRIO 9R59DN or 9R59DS or LAFFAYETTE HE-30, Karl VK6PKK, PO Box 512, Manjimup 6258 WA.

FOR SALE TAS

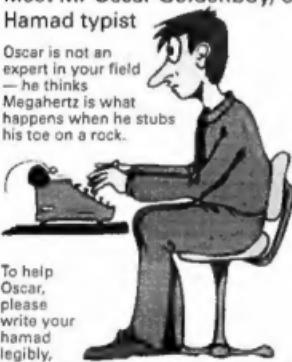
- YAESU Narrow CW filter, suit FRG100 receiver. TET 4el 3 band Yagi, h/duty rotator offer! Allen, VK7AN. Phone 03 6327 1171, 0419 755 124

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Meet Mr Oscar Goldenboy, our Hamad typist

Oscar is not an expert in your field — he thinks

Megahertz is what happens when he stubs his toe on a rock.



To help Oscar, please write your hamad legibly, using both capitals and lower case, and use legitimate abbreviations.

This will reduce the chance of errors being published, which inconveniences everyone.

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27 & 28 October**

*ARDF Events•Displays & Sales•Fox & Sniffer Hunts•Homebrew Competition
Enquiries: Stephen SWL 03 5331 5526, Doug VK3KAY 03 5339 2778*

Clubs, do you have an event coming up?
Send details to the Editor for inclusion in PLAN AHEAD spots

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Dick Smith.....	28, 29, OBC
Icom.....	IBC
Tower Communications	16
WIA Call Book.....	IFC

WANTED COCOS ISLAND

- VK9CC Andy needs HF RADIO. My YAESU FT-101 dead! Anything considered! Sweep tubes 6SJ6C will get me back on air from here on Cocos Island! Prefer solid state but must be low cost as freight is a killer! Andy VK9CC, benoel@fan.net.au

MISCELLANEOUS

- I am writing a history of the Blue Mountains Amateur Radio Club/s, in particular the early years from its inception in 1958, as the Blue Mountains Section of the WIA. NSW Division. I am mainly after photographs of early members. i.e. VK2s - EX, AVA, AGN, HZ, TM, ADA, RM, ACP, AVK, ABK, MZ, NR, QA, NK, ART. If anyone has information on those early years, I would be grateful. I can be contacted at email: dacift@pnc.com.au, or QTHR. Daniel Clift VK2DC

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or call Arthur VK3VQ on 03 9598 4262 or Allan VK3AMD on 03 9570 4610, for an application form.

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MISCELLANEOUS

- The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

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If you are looking for valves you can contact: Gaminli Liyadipitiya at email: gamini@ee.unsw.edu.au Small negotiated fee — first come first served.

* AMIDON FERROMAGNETIC CORES:

For all RF applications. Send business size SASE for data/prices to RJ & US Imports, PO Box 431, Kialma NSW 2533 (no enquiries at office please). 14 Boonyo Ave Kialma. www.cyberelectric.net.au/rjandusimports.

Agencies at: Active Electronics Tas, Truscott Electronic World, Melbourne and Mildura; Tower Communications, Perth; Haven Electronics, Nowra



Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

RE: AM TRANSMISSION (sic) - AR August 2001

It is gratifying to know that AM is still alive and kicking. Keep it up chaps.

Some years ago, I collected enough bits and pieces to construct an AM rig similar to that outlined by Antony Rogers' (VK3JIA) in his letter published in the August issue of Amateur Radio. Unfortunately, I never proceeded with the construction other than a 6V6/807 rig as described in the Radio and Hobbies publication "The Australian Shortwave Handbook" for 1950. The gear I have includes power transformers, chokes, 866 mercury vapour rectifiers, 807s, a 50 Watt modulation transformer, class AB2/B driver transformers for the modulator, and a Geloso VFO. There is also a quantity of lovely ceramic valve sockets, and vintage meters.

These items (and more) are gratis to anyone who would like to make a trip to sunny(?) Mount Gambier to collect them. It would be a shame to throw them out.

I am QTHR in the callbook and can be contacted on (08) 8725 5514 or via e-mail at ieh@sesavvic.com.au.

73, Ivan VK5QV

Membership

I refer to a letter from Mike Patterson VK4MIK, published in the August 2001 issue. Mike asserts that members from

North Queensland do not feel any ownership of the WIAQ. I can assure him that his views are NOT universally held by Amateurs from his region. By way of example, the current WIAQ council has three councillors from north of the Tropic of Capricorn (one from his own area), a secretary from Mt Isa, and I was born in North Queensland and spent most of my working life in Townsville. The immediate past president was from Thursday Island. There is also a long-standing tradition of members from North Queensland joining the WIAQ council when they retire in Brisbane.

The WIAQ also holds regular general meetings outside of Brisbane, including a regular one at the North Queensland convention. There is ample opportunity for members from outside Brisbane to become involved in the life of their organisation. Let's not waste our effort on re structuring when it is not necessary. We even hold a regular HF sked on 3.605 MHz after our news on Monday evenings, where you can talk directly to council. Sadly, whilst this net is open to all, it is only patronised by a few regulars. Another avenue of input is the callback sessions after the Sunday morning news.

The WIAQ recognises that running an organisation like ours in the most decentralised state in Australia is difficult but we try to achieve a balance between the wishes of all our members. The

WIAQ has directly funded Amateur Radio projects in Micks's own area. The WIAQ is a democracy, run by the membership, and yet Council gets little or no input from the members. Ownership of any organisation is a two way street. It is very frustrating for elected office bearers, when the membership does not get involved.

So Mike, will we be seeing your nomination for WIAQ council in 2002?

John Stevens VK4AFS

Why I am an Amateur

Starting in late 1939 I developed an interest in experimenting with circuits, trying them out and altering them as the need arose. How things change as we grow older! If we define an activity index as Number of contacts multiplied by 1000 divided by possible days to operate; then from 1947 to 1949 it was 697 while I worked in Joinery, from 1949 to 1955 it was 41, while I was in the PMG. I married in 1955 and from 1955 to 1963, the index became 14. From 1963 to 1990 when I worked for CSIRO the index was 12, but since I retired in 1990 until 2001 it fell to 3. So much for free time in retirement for operating. However I have always kept up my constructional and experimental activities.

Phil Grigg VK2APG.



Silent Key

Bruce Wheeler VK6BEQ

Dear Sir

My father asked me to advise you of his death so that you may print it in your magazine.

Bruce Andrew Wheeler passed away on August 14, 2001 in Swan Districts Hospital, WA, after a long illness. He spent many years moving in Radio

circles and used the following call signs throughout his years: VK6XX, VK3BBS, VK5B, Woomera Radio and his current one of VK6BEQ, which he hasn't been able to activate due to his illnesses.

He wished to advise you of his passing and thanks everyone for many years of fun.

Thank you for printing this in Amateur Radio for him and it also means a lot to me, his daughter as well.

Regards,

Monique Wheeler/O'Garr,
6 Brown Street, Middle Swan 6056.
On behalf of Mr Bruce Wheeler
August 16, 2001



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